Morang's Modern Geography

PART I. Our Home & Its Surroundings
PART II. Our Earth as a Whole

AUTHORIZED BY THE MINISTER OF
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MORANG'S TWENTIETH-CENTURY TEXT-BOOKS

TARR AND McMURRY GEOGRAPHIES

OUR HOME
AND ITS SURROUNDINGS

A FIRST BOOK OF MODERN GEOGRAPHY

WITH COLORED MAPS AND NUMEROUS ILLUSTRATIONS CHIEFLY
PHOTOGRAPHS OF ACTUAL SCENES

REVISED AND ADAPTED FOR CANADIAN SCHOOLS

BY W. C. CAMPBELL

AUTHOR OF "MODERN SCHOOL GEOGRAPHY," ETC.

Authorized by the Minister of Education for use in the
Public Schools of Ontario.

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1901

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PREFACE

This little book is intended to be the child's first step in the study of geography, and as it is a practical innovation, it perhaps needs an explanatory foreword.

Necessity for Home Geography. — The final basis for all study of geography is actual experience. Yet textbooks on this subject rarely treat Home Geography at all, and those that do, devote but few pages to it. The subject should, we think, receive far more careful attention.

Necessity for Other Basal Notions. — Home experience alone, however, cannot afford a complete basis for the later study of geography, because no one locality presents all the features required. From this it happens that the best books have contained some definitions and illustrations, as of mountain, river, valley, harbor, and factory, and have planned to build the later text with the ideas these gave as a foundation. Such conceptions are certainly necessary in the early part of geography; but mere definitions fail to produce vivid, accurate pictures. The average pupil who has pursued geography for a year has little notion of the great importance of soil, of what a mountain or a river really is, of the value of good trade routes, and why a vessel cannot find a harbor wherever it will cast anchor along the coast. Yet such ideas are the proper basis for the study of geography in the higher grades. The fact that they are so often wanting is proof that our geography still lacks foundation.

How these Needs are met. — In this first volume the attempt is made to supply this foundation by treating first such common things as soil, hills, valleys, products, animal life, people, industries, climate, and government, which are part of every child's environment; and secondly, other features, as mountains, rivers, lakes, and the ocean, which, though absent from many localities, are still necessary as a preparation for later study. Definitions, however, are not relied upon for giving the child this extra knowledge, but detailed descriptions and discussions instead. This by no means involves neglect of the child's own environment from the time the unfamiliar matter is introduced, for references to home experiences in this regard are frequently used. We believe that our plan gives a fuller guarantee of fitness for advanced study than has heretofore been furnished.

Relationship to Mankind. — According to the definition of geography, — which treats of the relation between man and the earth, — a hill or a lake is worthy of mention only because it bears a relation to us, the men upon the earth: considered by itself it is not a part of geography. Therefore, each chapter which takes up one of the above subjects, either closes with the bearing of the given topic upon mankind, or it deals with the human relationship throughout.

Reviews and Suggestions for Further Home Study. — A study of books alone can never furnish an adequate knowledge of geography. Therefore it has been thought expedient to make numerous suggestions upon each section, in order to remind both teacher and pupil of suitable excursions, experiments, etc., to show at the same time the breadth of the subject, and to encourage the habit of investigating the home environments. Review material is always suggested in frequent comparisons and contrasts, and in introducing new topics through others that have already been presented.

MAPS. — The succeeding volumes of this series are of the same size as the present one; our reasons for this marked innovation are — that the old form is both unnecessary and unwieldy. The main excuse for the size of the common geography is the supposed need of large maps, a need which should be supplied by atlas and wall maps. This supposed requirement has led to the introduction of so many names, entirely unnecessary to pupils, that the purpose of a school book has generally been sacrificed to that of a cheap atlas. Aside from this, the old form of geography is distinctly objectionable because of its size, which makes it difficult to handle and to carry. When open it occupies nearly the entire surface of the desk; and being so unwieldy, it is the most easily damaged of all the school books in use.

The most pertinent inquiry in regard to the maps of a text-book of geography should refer not to their size, but to their quality; and in respect of excellence we believe that our maps are the best thus far printed in any geography.

ILLUSTRATIONS. — The illustrations have been selected with great care to illustrate specific points; and for the sake of accuracy, photographs have in most cases been employed. They are not inserted merely for the purpose of entertainment, but in every case bear a distinct relationship to the text. They are not intended as mere *pictures*, but as *illustrations;* and being numbered and referred to frequently, they pay for their space by contributing materially to the book's fund of instruction.

This, as well as the other volumes of the series, is based upon and is largely the work of Professor Ralph S. Tarr, B.S., F.G.S.A., Professor of Dynamic Geology and Physical Geography at Cornell University; and Professor Frank M. McMurry, Ph.D., Professor of Theory and Practice of Teaching at Teachers' College, Columbia University.

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PART I

OUR HOME AND ITS SURROUNDINGS

I. THE SOIL

You have often played in the dirt. Did you ever stop to think what it is made of? It was not always what it now is. You know that the wood in your desk was not always a part of the desk; it used to be part of a tree, and has a long story to tell about itself before it was brought to your school. So all the dirt or *soil* that you have ever seen has a long story to tell about how it became what it is now. Let us see what that story is.

When mud dries upon your hands and you rub them together, you can notice an unpleasant, gritty feeling. This is caused by the scraping together of hard bits of something in the soil. If you rub some of this dirt against a smooth piece of glass, you can often hear it scratch the glass. This shows that these little bits must be very hard, for if they were not, they could not scratch anything so hard as glass. They must be even harder than a pin, for you cannot scratch glass with a pin.

It will help you to find out what these bits are if you examine some sand. The grains in it are tiny bits of stone, large enough to be clearly seen. When they are rubbed against glass, they scratch it, because they are hard and sharp.

Sand is made of stone that has been broken up into very fine pieces. Soil is also made of stone, but the pieces are finer still. The soil that you have seen, such as that in the school yard, or by the side of the walk, was once stone.

Soil has been made from stone.

Since soil is found almost everywhere, you may wonder how so much stone has been changed to it. The answer is not hard to find. Did you ever pound a bit of brick up until you made it into dust? You can change a stone to dust in the same way. Break one into small bits and see how much it resembles dirt.

Sometimes one sees men drilling holes into stone: the tiny pieces that are broken off collect in and round the hole, and look like a muddy paste. When a grindstone is used to sharpen tools, small pieces of the stone are ground off, and if water is poured upon it, this dust makes the water muddy, just as soil would.

Much rock has been changed to soil by the rubbing of pieces of stone against one another. In this way tiny bits have been worn off, as chalk is worn away when rubbed against the blackboard, or slate pencils against the slate. Perhaps some of the soil that you have seen has been made in this manner. Further on you will learn about the glaciers which have caused much of this rubbing.

The grinding of rocks together has made much soil.

But this is not the only way in which rock has been changed into soil. Much of it has decayed and fallen to pieces as wood does. You know that, after a long time, stumps of trees, and the boards in sidewalks, grow so soft that they fall to pieces. Perhaps you have called it *rotting*, but this means the same as *decaying*. The picture (Fig. 1) shows such a stump.

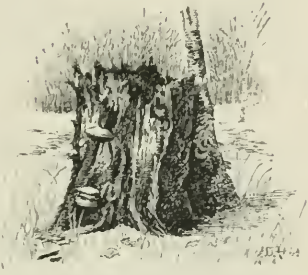

FIG. 1.
A decaying stump of a tree.

Other things even harder than wood decay in much the same way, although perhaps more slowly. Hard nails, at first bright and shiny, decay until they become a soft, yellow rust. Iron pipes and tin pails rust until holes appear in them.

You may not have thought that stones also decay, but they do. The headstones in old graveyards are often so crumbled that the letters can scarcely be read, and sometimes the stones have even fallen to pieces. The decay of stone may also be seen in old buildings, in boulders, and rock cliffs. Have you ever noticed this?

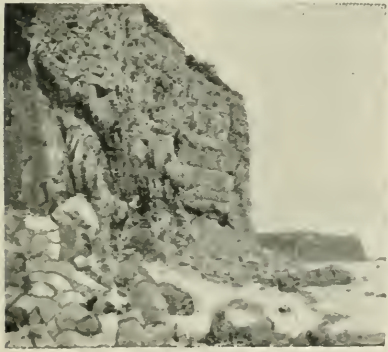

FIG. 2
On Grand Manan Island, N. B
A rocky cliff containing many cracks.
Point to some of them.

Soil has been formed, also, by the decay of stone.

There are several things that help to cause this decay. All rocks have cracks in them (Fig. 2). Usually some of these are so large that they can be plainly seen; but there are many others so tiny that they cannot be seen without a magnifying glass. When it rains, the water steals into them, and by softening and rotting the rock, very slowly changes it to a powder.

The water may also freeze in these cracks and force the stone apart. If you have seen water pitchers, or iron water pipes, burst in cold weather, you know how this is done. Some of the pieces of stone broken off in this way are very small, others quite large (Fig. 3).

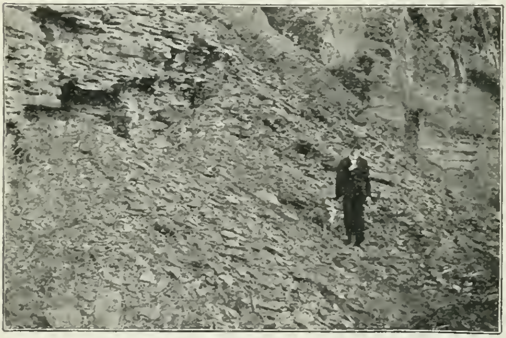

FIG. 3.

Pieces of rock broken from a cliff by the weather. Can you also see the cracks in the rock of the cliff? Find some broken pieces in Figure 2.

Plants help the water in this work. In search of food they push their hair-like roots into the cracks, and there remain until they grow so large that they also pry off pieces.

The earthworms you often see after a heavy rain also help in crumbling the stone. In order to get food, they take soil into their bodies and grind the coarse bits together until they become very fine.

Water finding its way into the cracks causes rock to decay and crumble. Frost assists in this. Plants and earthworms also help to break it up.

Rock changes to soil most rapidly near the surface; for the rain, roots of plants, and earthworms can reach it more easily there than elsewhere. So the deeper into the earth one goes, the less change is found (Fig. 4); and, no matter where you live, if you should dig deep enough, you would come to solid rock.

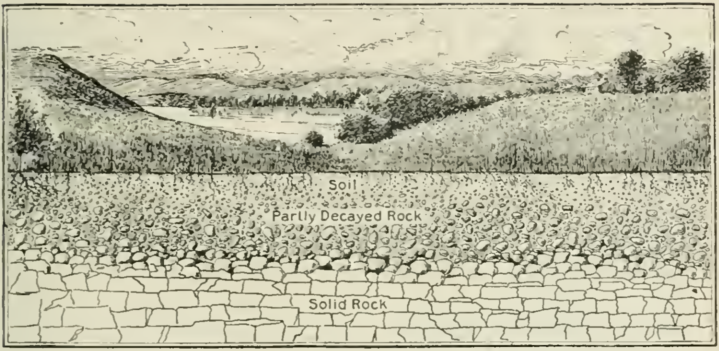

Fig. 4.

A section, as if the earth were sliced through, like a loaf of bread is cut, so that the part below the surface is seen. Tell what you see in this picture. Notice the roots of the tree on the left side.

Figure 5 shows soil about one and one-half feet deep. Sometimes there is much more than this, and men may

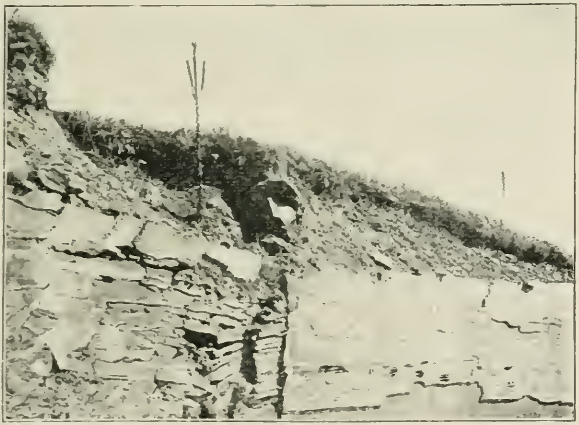

Fig. 5.

A picture showing solid rock beneath the soil. Notice the cracks in the rock.

even dig deep wells without finding rock; but in many places there are only a few inches of soil, or, sometimes, not even enough to hide the rock.

One reason for such differences in the depth of soil is that some kinds of stone decay more easily than others. Another reason is that in some places the rain washes the bits away as fast as the stone crumbles. This may leave the rock quite bare in one place and make the soil very deep in another.

There is solid rock beneath all soil.

How different it would be if no rock had ever changed into soil! There could then be no grass, flowers, or trees around your home, because they grow by means of the food that they get from the soil.

Without grass there could be no cattle, horses, or sheep; in fact, few animals such as are found upon the land could live; for what would they eat? What, then, could you yourself find to eat? There would be no vegetables, no bread, butter, and milk, and no meat. You see that, if there were no soil, few people could live; so that the soil under our feet is a very valuable substance.

Without soil, few plants, animals, or people could live on the land.

Soil is needed by plants because it holds water. They become thirsty as well as you. Where the soil is only a few inches deep, it may dry out on hot summer days, and then the plants die; but where it is deep, the roots may reach down several feet till they find damp earth.

It is surprising how long the roots of some small plants are (Fig. 6). For example, the clover in the picture is less than a foot high, but its roots are longer than you are tall. They reach so deep down that even in dry weather the clover is green while other plants, with shorter roots, are withered and dry. Some trees push their roots down a greater distance still. Can you find out how long the roots of any weeds are?

The soil holds food, as well as water, for plants. In it is found something which plants need, and which they take up through their roots; it is a part of the soil itself, and is called *plant food*. Each blade of grass and each limb of a tree contains some of it: and when a piece of wood is burned, some of this food is left behind in the ashes.

Every person even has a quantity of it in his body: your bones and teeth are partly made of it. But you did not take it directly from the soil: the plants took it for you, and you received it from them in flour and other foods that you have eaten.

Soil furnishes water and food to plants.

All plants do not need the same kind of food any more than all animals do. Horses eat hay and grain, while dogs eat meat: so some plants need one kind of food, and some another. These different kinds of plant food are found in the different kinds of soil, of which there are very many.

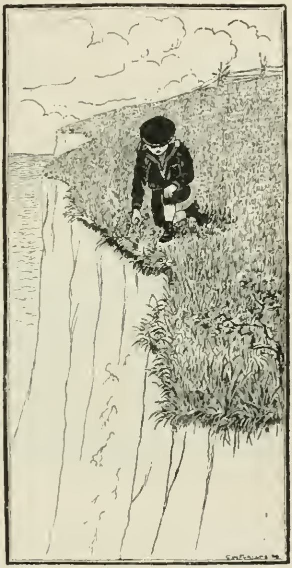

FIG. 6.

Some of the roots of the clover that the boy is picking have reached out into the air through the side of the bank. They were seeking water.

For example, some soils are fine, while others are coarse, because some rocks have crumbled to finer bits than others. Then, too, there are many kinds of rock, such as granite, limestone, and sandstone; and when they decay they make different kinds of soil.

In some places great numbers of plants have grown up and died. During their growth they took substances from the air, as well as from the soil, and when they died and decayed they returned some of these to the soil. These plant remains have become mingled with the soil, making it dark and sometimes almost black. In some places this dark-colored layer may be several feet deep, as in forests, or in swamps, where plants have been growing and decaying for hundreds of years. This is an excellent soil for farming, because it contains much plant food.

There are many different kinds of soil.

Soil that has much plant food in it is said to be rich or *fertile*; if it has little it is said to be poor or *sterile*. The plants are taking away some of this food; they are really robbing the soil. But when weeds and trees fall and decay on the spot where they grew, they pay back what they took away. In fact, some of this food is returned to the earth every autumn when the leaves fall from the trees.

But if plants are carried away from the spot where they grew, there is danger lest fertile land shall be robbed of so much plant food that it will become sterile. Now this often happens; for farmers send away their wheat to make flour, and haul the most of their grain and hay to market. Some farmers have done this for so many years that they are no longer able to support their families on their land, but have been obliged to move away to find other farms where the soil has not been robbed of its plant food.

The wise farmer takes care to put some plant food back upon the soil to pay for what he has taken, so that he may continue to grow good crops. That which he puts back upon the soil is called a *fertilizer*, because it keeps the soil fertile. People in the city often use a fertilizer to feed the grass of their lawns and keep it green.

Fertile soil may be robbed of its food and become sterile.

II. HILLS

The soil that has been formed from stone has not been left smooth and level like a floor. The surface of the land is usually uneven or rolling; and even those places which at first sight appear level, are really sloping (Fig. 7). Besides such gentle slopes, there are many others steep enough to allow coasting in winter, and others still that are much too steep for this purpose. In other words, *hills*, some gently sloping, some steep, are found almost everywhere upon the surface of the earth (Fig. 8).

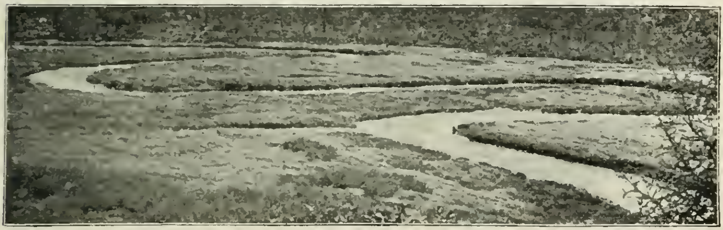

Fig. 7.

A very level plain; but, as a stream is flowing through it, there must be slope.

These hills have not always been here. Even the ones you may have seen and climbed have been slowly made. Let us see what has caused them.

When it rains slightly, the water soaks into the ground and disappears; but when there is a heavy rain, all of the water cannot sink into the soil as rapidly as it falls. Some then begins to flow away. One little stream, perhaps hardly an inch wide, begins at one point: another joins it: quickly several of them unite, and soon a good-sized brook or creek is formed. Have you not noticed this flowing water in the school yard, in the roads, and on the sides of hills?

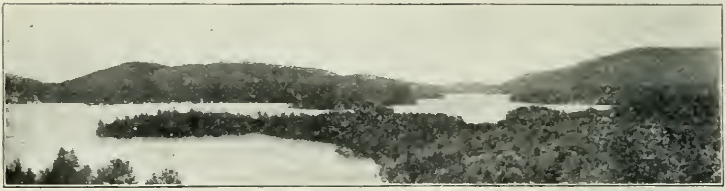

Fig. 8.

A picture of a hilly country. The surface of the lake is level; but the hills, some steep, others gently sloping, are very irregular.

But did the water flow off without taking something with it? Was it not muddy? This means that soil had become mixed with the water and was being borne away. Every heavy rain bears along much soil, cutting out little channels, washing out roads, and perhaps even destroying the beds of railways, so that trains must stop running for a time.

During such a rain little channels, or *valleys*, and tiny *hills* and *ridges* are carved in the soil (Fig. 9). No doubt you have seen these formed very many times. If not, you can easily make them by pouring water from a sprinkler upon a pile of loose dirt.

There are many heavy rains every year, and in a lifetime their number is very large. During many hundreds of years, then, the water could wash away an enormous amount of soil and rock which the large streams and rivers would carry away to the sea. By this means deep valleys have been formed, leaving hills between them, much as the tiny channels in the school yard are cut in the earth by the rain water.

Then, also, some rocks are not so hard as others, and the softer ones, as they break up, are naturally carried away faster than those that are harder. This leaves high ground where the rocks are hardest.

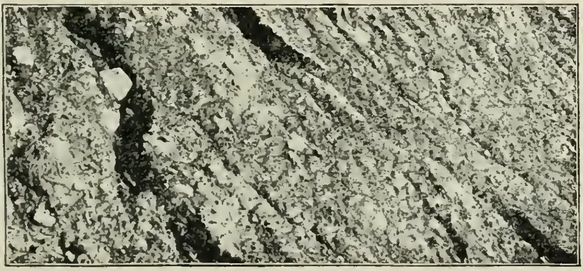

FIG. 9.

Little hills and valleys cut in the soil by heavy rains. Point to some of them.

What a change water must have made in the appearance of the surface of the earth! No doubt, in the very beginning there were hills and valleys; but every year, for thousands of years, these have been slowly changing, so that they are now very different from what they were long ago. And after many more years they will be very different from what they now are, for they are changing even now.

Most hills have been carved out by running water.

In every neighborhood there are hills, although they may not be very high. The picture shows one with a somewhat gentle slope

(Fig. 10). If a person were to walk up this hill, going from its *base* to the top, or *summit*, he would walk more than a mile; but this, of course, does not mean that the hill is a mile high.

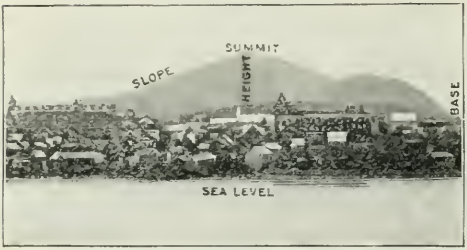

Fig. 10.
To show the difference between the slope of a hill and its height.

For example, in Figure 11 you see a board ten feet long, with one end resting on the ground and the other on a fence four feet above the ground. If a person starts at the lower end and walks to the upper end, he travels ten feet; but he is then only four feet above the ground.

The height of a hill is much less than the length of its slope.

Perhaps you have heard that it is colder on the summit, or *crest*, of a high hill than at its base. If one takes a thermometer with him when going to the top of a hill

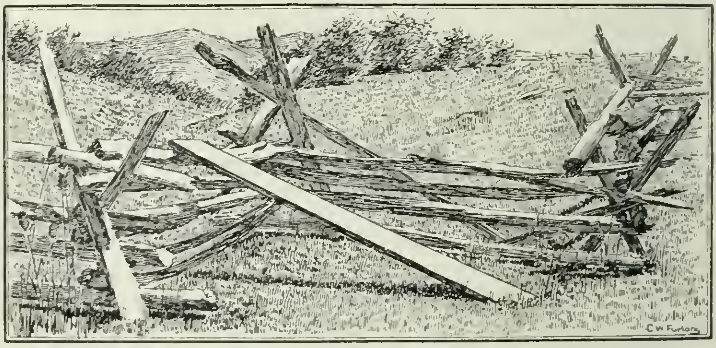

Fig. 11.

which is 300 feet high, he finds that it is about one degree colder at the top than at the bottom. One might not notice any difference in climbing low hills, but it can easily be noticed on high ones; and if your home is near one, you can prove this.

People who live where there are high hills often observe that it snows upon them while it rains upon the lower ground at their base (Fig. 12). Explain why this is so.

It is colder at the crest of a hill than at its base.

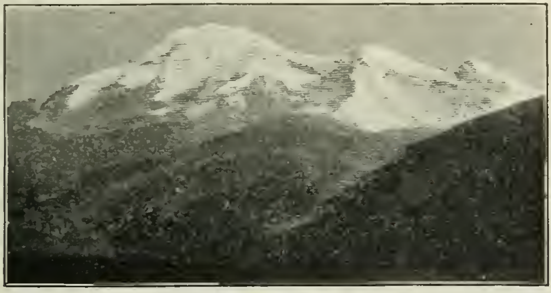

FIG. 12.

Do you see any reason for thinking that it is colder near the summit of this high mountain than at its base? This is Mount Chimborazo in South America, where it is very hot in the lowlands.

Many people prefer to build their houses upon hills, partly because the air is cooler and fresher in summer; but another and more important reason is, that it is more healthful to live on this high ground. Where the land is low, the slope is often so gentle that the water cannot flow off readily, so it stands, sometimes making wet places called *swamps* (Fig. 33). Houses in such places often have cellars and foundation walls that are damp, and the people who live in them are in danger of fever, and of other kinds of sickness caused by this dampness.

But the water usually flows quickly away from a hill, so that even after a heavy rain the ground soon becomes dry. In large cities, where land is very expensive, people build almost anywhere; but in these cities there are so many drain pipes, or *sewers*, to carry off the water, that even the low places are quite dry.

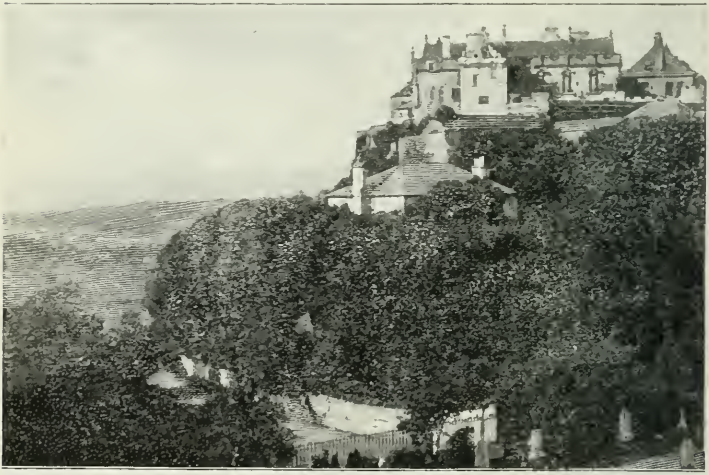

Fig. 13.

A castle built upon the brow of a high hill. Describe the view from there.

In times past some men were in the habit of building great castles with thick walls, on the crests of hills (Fig. 13). From these they could look out over the country for a long distance and spy approaching enemies in time to prepare for them. Then, too, the steep sides of the hills were difficult for the enemy to climb, so that the people living in castles on hilltops were quite safe.

Some of the Pueblo Indians built their towns upon the tops of steep hills in order to be safe from the more savage Indians who attacked them. For much the same reason the Puritans, many years ago, were in the habit of building their churches upon the hilltops.

Hills at present are little needed for such a purpose; but there is another reason why people like to live upon them. From their tops they can look out over the fields for long distances and enjoy the beautiful views. Have you yourself ever enjoyed such a view?

People like to build their houses upon hills, because it is healthful there and the views are beautiful.

III. MOUNTAINS

YOU may never yet have seen mountains, but you have certainly seen something that looks much like them. Often, on a summer evening, the sun sets behind great banks of clouds that reach far up into the sky. Some of them have rough, steep sides, and great, rugged peaks, while others have more gentle slopes, and rounder tops. Oftentimes there are many of them together, and they are so real that it seems as if one might climb their sides if he could only reach them.

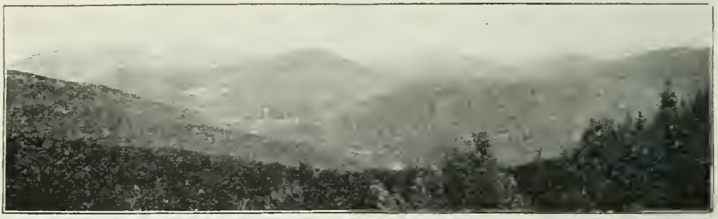

FIG. 14.
A scene among the White Mountains.

This is very much the way snow-covered mountains appear in the distance: in fact, the resemblance is so close that, when one is at a distance from mountains, he must often look carefully to note whether he is looking at real mountains, or only at clouds in the sky.

The mountains in Fig. 14 are much like hills except that they are larger. Hills are seldom more than a few hundred feet high, while these mountains rise two or three thousand feet in height. Some mountains are so low, and their slopes so gentle, that one is able to climb to their tops without much trouble. Such mountains are often called hills. But many others are even two or three miles in height. Their *peaks* rise far above the clouds and are often wholly hidden by them, as in Figure 15.

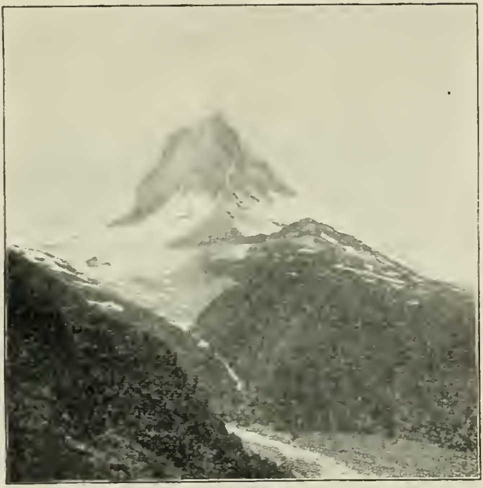

FIG. 15.

A mountain peak in Switzerland, with snow on its sides and base, and a small cloud hiding the very summit.

Usually where there is one mountain peak there are others near by (Fig. 16). They often extend a long distance, perhaps hundreds of miles.

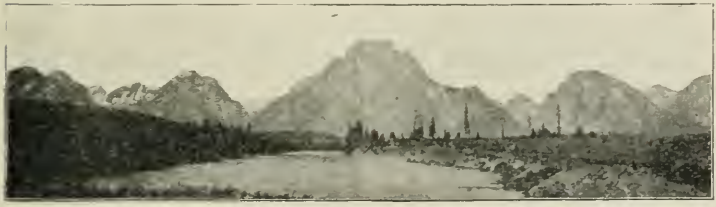

FIG. 16.

A number of lofty mountain peaks near together.

forming what is called a *mountain chain*, or a *mountain range*.

Such great ranges have not been carved out by running water, as hills have been. In fact, real mountains are found only where parts of the land have been slowly raised or pushed upward until they are as we see them to-day (Fig. 17). Among these mountains, as elsewhere, running water has of course cut out many valleys.

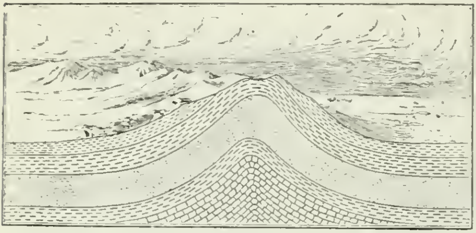

FIG. 17.

This is a drawing of a mountain range sliced through so as to show the layers of rock that have been pushed upward.

You can imitate mountain folding by crumpling a number of sheets of paper. The reason for this folding of the rock layers will be found stated on page 15, part II.

Mountains are masses of rock that have been pushed above the level of the surrounding country.

Men often climb to the tops of mountains. It might seem that this would not take a very long time, nor be very difficult; but to go to the crest of even a low mountain is often quite a task. Upon a level road one can easily walk a mile in less than half an hour. But it might require a whole day of steady climbing to reach the summit of a mountain only one mile high.

It would be a long journey even if one could go in a straight line to the top. It has already been stated (page 12) that to climb a hill two or three hundred feet high it is necessary to walk a longer distance than this. The same is true of mountains.

Most mountains are so steep that one would grow very tired climbing directly up their slopes; so a much longer, zigzag path is usually followed. Then, too, there are often steep *cliffs* or *precipices*, that could not be climbed (Fig. 18), and one must travel round these to find a place where the slope is gentle. This makes the path still longer, so that to climb a mountain one mile high it might be necessary to walk ten miles, or even more.

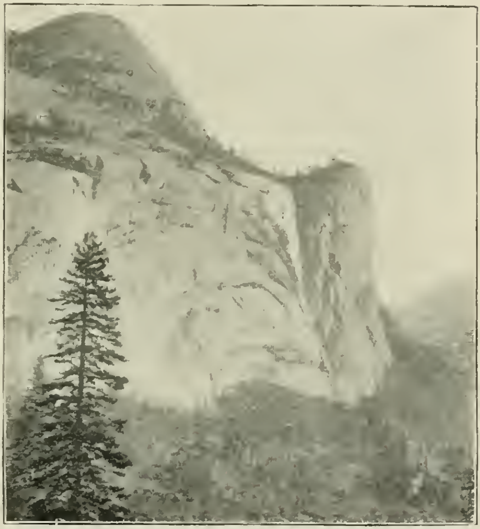

FIG. 18.

A mountain precipice in the Yosemite Park, among the Sierra Nevada Mountains of California. No one could possibly climb the face of this steep rock cliff, which is about 4000 feet high.

If the air is colder at the top of a hill than at its base, one might expect that it would be *very much colder* on the top of a high mountain, and this is true (Fig. 12, p. 13). In fact, it grows so much colder near the summit of the higher mountains that it *never* rains there, but snows instead; and it may even be so cold that trees cannot grow there (Fig. 20, p. 22).

It is a long distance to the top of a high mountain, and the air is cold there.

Many people cross the ocean to visit the Alps Mountains in Switzerland; but while they enjoy climbing about on the sides, and looking at the beautiful views, very few ever reach the summit of the higher peaks. Mont Blanc is one of the best known of these, and is nearly three miles in height. (The picture, Fig. 20, shows views of Mont Blanc.)

It is very difficult, and even somewhat dangerous, to climb to the summit of this mountain. When a person wishes to do so, he must employ guides to help him over the difficult places.

The round trip usually takes two nights and three days; as there is no place to obtain food high up on the mountain side, it is necessary to carry it. Overcoats and blankets are also necessary; for even though the journey be made in the hottest summer weather, it will be bitterly cold upon the mountain top.

Suppose that we are making such a journey. We start early in the morning so as to have a long day. Each of us carries a few light articles, but the guides and porter carry most, for they are strong and used to climbing.

At first we walk along a pleasant path in a beautiful wood. A house is occasionally passed (Fig. 20, G), and perhaps a green field. But soon there are no more houses and fields, and the trees become smaller and smaller, until the line is reached above which it is so cold that no trees can grow. This is called the tree line or *timber line* (Fig. 19).

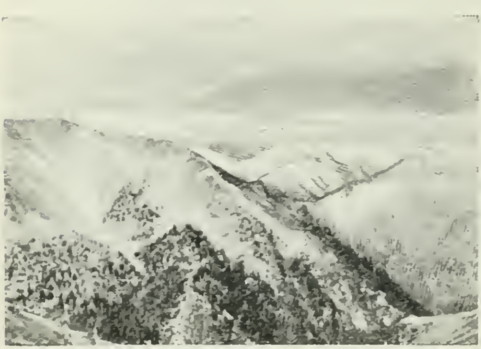

FIG. 19.

A picture of the timber line on the snowy slopes of the mountains in Yukon Territory, looking eastward from the east side of the Yukon River.

From this point on, no plants larger than bushes are seen, and after a while even these disappear. Meanwhile the soil and the grass have become more scarce, while here and there banks of snow are found in the shady hollows. Soon we have climbed to the *snow line*. This is the line above which snow is found all the year round. Now, no matter in what direction we look, rock and snow are everywhere to be seen, the latter often being hundreds of feet deep (Fig. 20, F).

What a beautiful view is before us! It repays us for all the hard work. We look down upon the woods through which we have just passed; then, over beyond them, to the deep valleys, with the green fields, pretty houses, and villages far below us; and, beyond these, to the other steep mountains upon the opposite side of the valley.

The guide takes his place in front of us, and often tells us to stop while he goes ahead to examine the way. It may be that the snow has bridged over and hidden a deep and narrow chasm, so that if one were to step upon this snow he might fall through.

Sometimes the guides lift one of us over a dangerous place; and, when it is steep or slippery, fasten all the members of the party together with ropes (Fig. 20, E), so that if one falls, the other may hold him.

As we advance higher and higher, it is often necessary to take a narrow path on the steep side of the mountain. On the right you can look hundreds of feet almost directly downward; on the left are great stones and masses of snow almost directly overhead.

The snow sometimes falls, forming snow slides or *avalanches*, which are very dangerous. They come tearing down the sides of the mountains with a terrible roar, burying whole villages beneath them. You have seen the same thing, on a much smaller scale, when snow has slid from the roofs of houses on warm winter days.

After one night spent in a little house about halfway up the mountain side, and after much hard work on the next day, we reach the summit (Fig. 20, A). Here, in spite of our wraps, we are all shivering; for upon high mountain summits there are fierce winds which seem to go through even the thickest cloth.

On this barren mountain top there are no birds, no trees, no grass: nothing but snow and rock: but if it is a clear day, and there are no clouds clinging to the mountain sides below, we may be able to look down into the beautiful green valleys, only a few miles away. There the birds are singing, flowers are blossoming, and men, working in the fields are complaining of the heat.

It is a difficult and dangerous journey to the top of a high mountain.

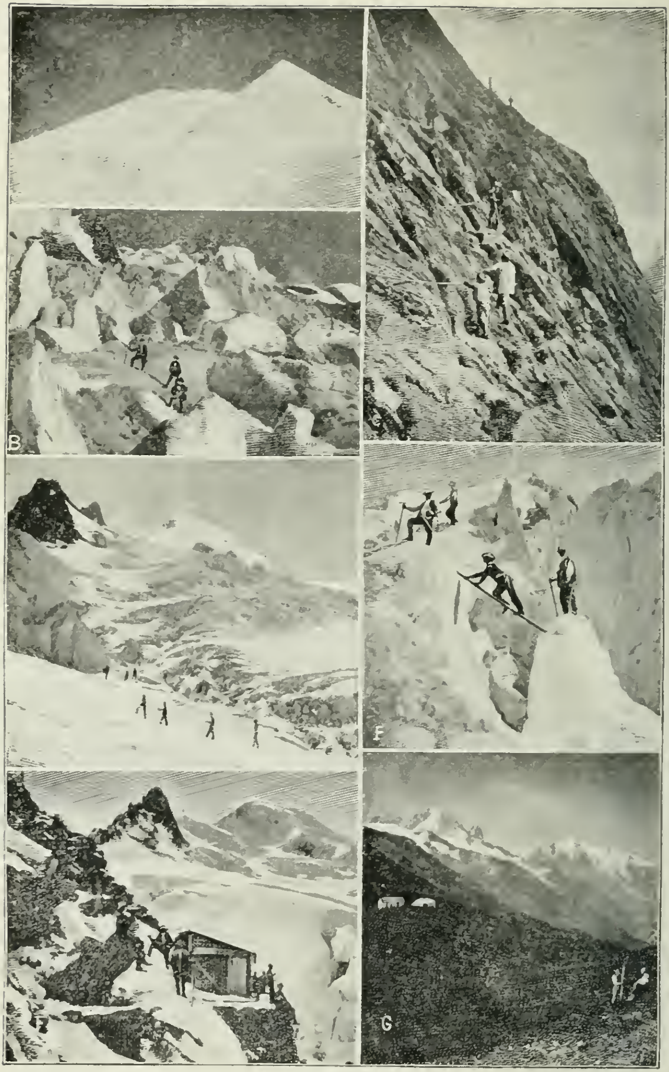

FIG. 20.

Seven photographs taken on a journey to the summit of Mont Blanc. See if you can find in these pictures any of the scenes described.

It is by no means so difficult to reach the summits of all mountains. Many of them (Fig. 14, p. 16) are so low that there is no snow upon them in summer, and trees live and thrive even at the top. Roads may have been made to the summit, so that one may drive up instead of walking.

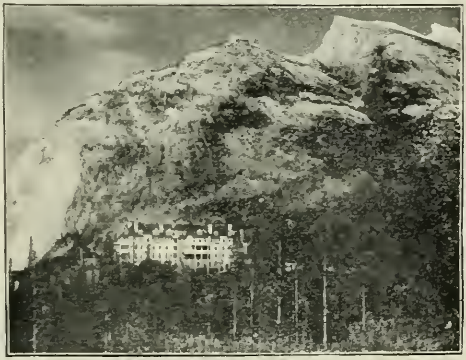

Fig. 21.

A hotel at the base of a lofty mountain at Banff, on the Canadian Pacific Railway, in Alberta, N.W. Territory.

Among some of these mountains hotels are built (Figs. 21 and 24), to which people go in summer to escape the hot weather. There they may walk through the woods, and climb to many interesting places, where fine views are to be had.

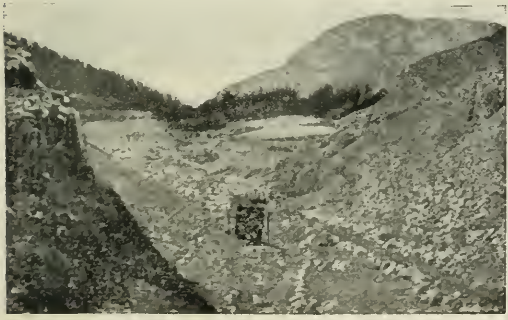

Fig. 22.

Entrance to the Van Winkle Bar gold mine, near Lytton, B.C. Here men are digging gold ore deep in the mountain side. The ore is brought to the surface and crushed, so that the particles of gold can be extracted.

Mountains are important summer resorts.

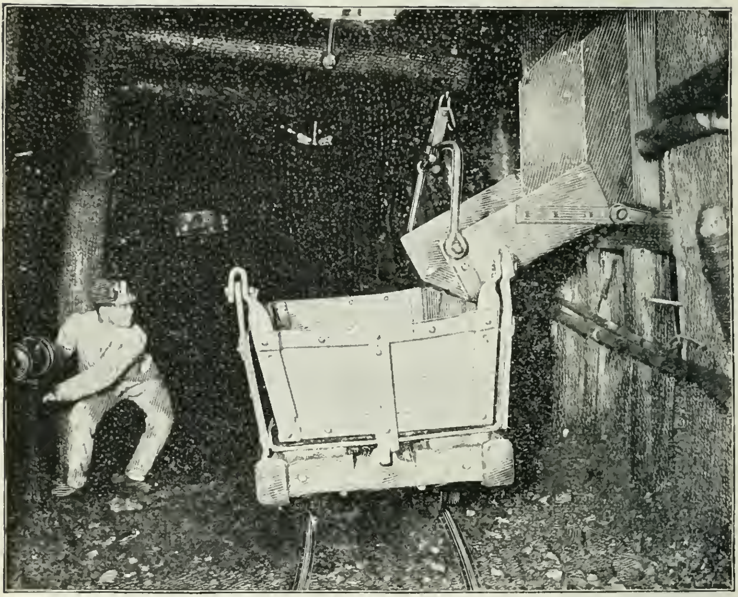

FIG. 23.

This man is deep down in the earth in an iron mine. He is preparing to load the car with ore which has been dug in a tunnel just above.

Perhaps you already know that the rocks inside the mountains sometimes contain gold and silver (Fig. 22). Iron, lead, and other *metals* are also found there. When they are dug out from the rocks they are *ores*, which do not look much like these metals as we know them. But the metal in the rings, watches, and silver coins that you have seen, and even the iron parts of your school desks, may have come from the rocks of some mountain (Fig. 23).

The trees in the mountain forests are also valuable. The most common kinds are evergreens, such as the pine, hemlock, and spruce, which are green even through the winter, and which can live on the cold mountain sides as far up as the timber line.

The land upon a mountain side is usually too steep and rocky for farms. But even where farms are not possible, trees often grow finely, covering the mountain for miles and miles with dense forests. This is an advantage, for the trees may be cut down and sawn into lumber, from which all sorts of wooden articles are made. Possibly the very seat in which you are sitting was once a part of a tree that grew on the side of a mountain.

Mountains are of further use because of the abundance of water that they supply. We have already seen that there is much ice and snow upon some of them; in fact, there is so much upon the higher ones that it can never all melt away, no matter how hot the summer may be.

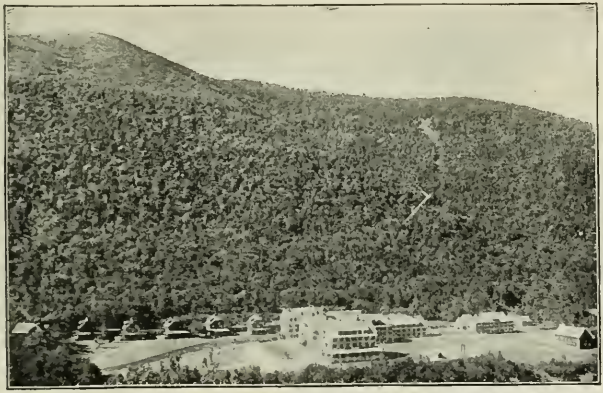

FIG. 24.

The forests on the sides of the White Mountains. The large buildings are the hotels of a summer resort.

During hot weather many streams dry up; but at such times the ice and snow of the mountains only melt the faster, so that the streams which flow forth from these mountains are even more swollen than usual. This water may run along for many miles until it finally reaches towns and cities where people need it to drink. Do you know of any city that gets its drinking water from such a river?

Mountains furnish metals, lumber, and water.

IV. VALLEYS

We have seen how water is always washing away soil, making hills and changing their appearance. Wherever hills are found there are always low places or hollows, and these are called *valleys.*

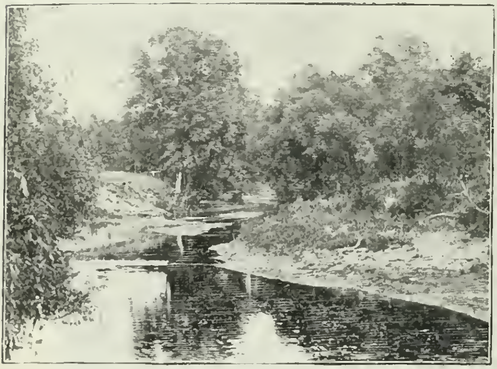

Fig. 25.
A beautiful stream in a wooded valley.

Some very small valleys you have already seen in Figure 9. They are only a few inches wide, and the tiny hills or ridges between them are only a few inches high.

Every stream of water, whether great or small, when flowing over soft earth, is carrying some of it away and forming valleys. Even when flowing over hard rock, the water is doing the same thing, but more slowly. It grinds the rock away by dragging pebbles and grains of sand over it, thus scouring it out. This work of the water is never finished, for every rain is slightly changing the valleys.

Are there any valleys in your neighborhood? Do you live in one? If you have travelled on the railway, you have certainly seen many of them. Figures 11, 14, and 25 show valleys. Can you find pictures of others in the book? In Figure 25 is shown a small stream with the land on either side gently sloping toward it.

Since there are very few places without slopes and hills of some kind, there must be few places without valleys. Although some of these are narrow, others are so wide that one cannot see across them.

Wherever two downward slopes come together, a valley is formed, whether the slopes be long or short. In those that you find, notice the difference in the slopes. If in one of the valleys there is a stream, notice the direction in which it flows. Why does the water flow at all? Which way is *down the valley*. Point *up the valley*.

You see, of course, that valleys have not only width but length. Many of them are only a few inches long, and you can certainly find some of these. Perhaps your home is in a valley that is many miles in length. Find out if this is true.

Most valleys have been cut out of the land by running water.

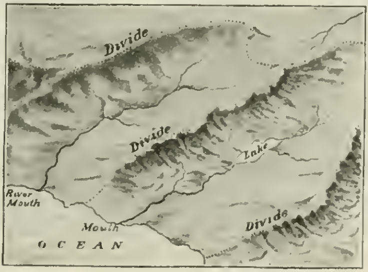

FIG. 26.

The dotted lines show the divides between the valleys. Trace them. What else do you see in the picture?

In the picture (Fig. 26) you see several valleys. Rain falls into each of these, some of it sinking into the soil and some running off down the slopes. Into which valley will the water flow that falls on the top of the ridge?

When it rains upon the roof of a house (Fig. 27), the water is divided along the highest part, some flowing down one side, some down the other. A similar thing happens when water falls on the land. Because the water parts, or divides, at the highest place between two valleys, this place is called a *divide* or *water-parting*, or sometimes a *watershed*. The dotted lines in the picture (Fig. 26) show some divides. How irregular the lines are!

A divide sometimes stands out sharply, as on the roof of a house; but in many places it is difficult to find, for the land there may appear to be flat. Can you point out such a place in Figure 26?

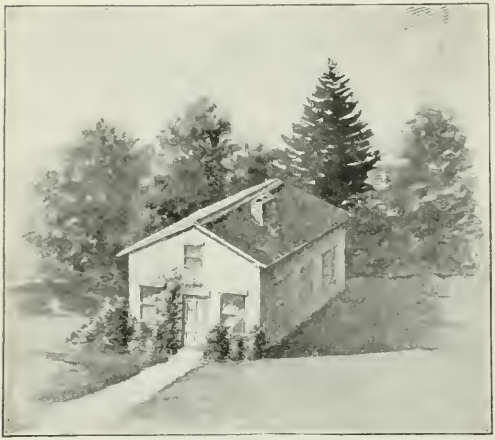

Fig. 27.

A house roof, to show that the water is divided along the highest point.

If you wish to know how wide one of these valleys is, where would you begin to measure? Would it not be from the divide on one side to the divide directly across on the other side? Of course it would, for the divides form the boundaries of the valley (Fig. 28).

A divide or watershed is the highest ground separating two valleys.

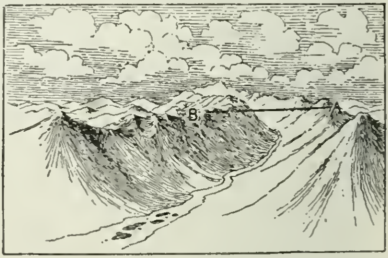

Fig. 28.

The line *A*-*B* shows the width of this valley. Observe that the valley is much wider than the stream.

While the valleys that one usually sees are both narrow and short, there are some so long and wide that one could not travel their whole length or width, even if he were to spend all day and all night upon a fast train (Fig. 29). One of the most noted in the world is called the Mississippi Valley, which is over three thousand miles long and many hundred miles wide.

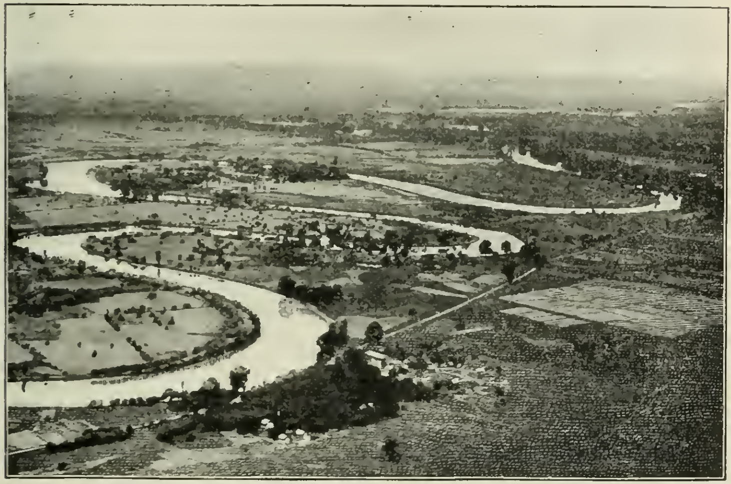

FIG. 29.

Picture of a river winding through a broad and very long valley.

When valleys are so large as this, their slopes must be very gentle. On that account many people who live in the Mississippi Valley scarcely know that they are in a valley. The river flows through the lowest part, and the homes of these people may be so far away that they have never seen it. All about them the land appears so level that it does not seem to form a part of a slope. It is therefore called a *plain*. But when rain falls there, it immediately flows toward the river, thus proving that the plain is a part of the great Mississippi Valley slopes.

Such an immense valley was not cut out by running water. You have learned that hills are made in that way, but that mountains are formed by the rising of great masses of rock. Some of the great valleys, like the Mississippi, have also been made by changes in the level of the land. But even the valleys that have been formed in this way have generally been greatly changed by the water that has run through them.

Some great valleys have been formed by the rising or sinking of the land.

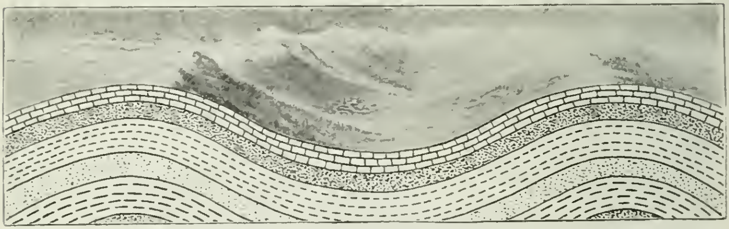

Fig. 30.

A valley sliced through to illustrate how valleys may be formed by the folding of the rock layers.

People generally choose the valleys for their homes. Even among high mountains, where it is impossible to live on the steep and cold sides, they often dwell in the bottom of the valleys. Here they are surrounded by lofty peaks which appear to shut them in almost entirely (Fig. 31).

Hills are often too cool or too steep, or have too shallow a soil for farming. The rains have washed the earth down the steep slopes into the lower part of the valleys, making a deep and fertile soil there. In the valleys, therefore, the best farms are found, with their great fields of corn, oats, wheat, and grass (Fig. 32). In the valleys, also, cattle and horses are raised, many large cities have sprung up, and railways have been built.

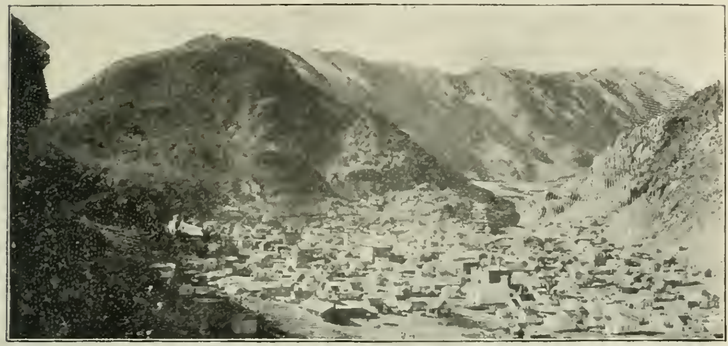

Fig. 31.

A city near some mines in a valley among the Rocky Mountains.

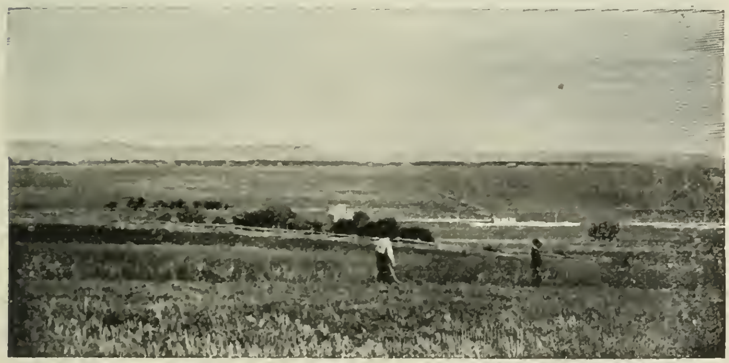

Fig. 32.

Scene in the valley of Grand Pré, a large and fertile valley in Nova Scotia.

Most of the land is really made up of slopes, and we are living upon them. It may not seem that your home is upon one, but it probably is. Your house may even be upon a hilltop, and yet you may be living in a broad valley.

Most people live in some part of a valley.

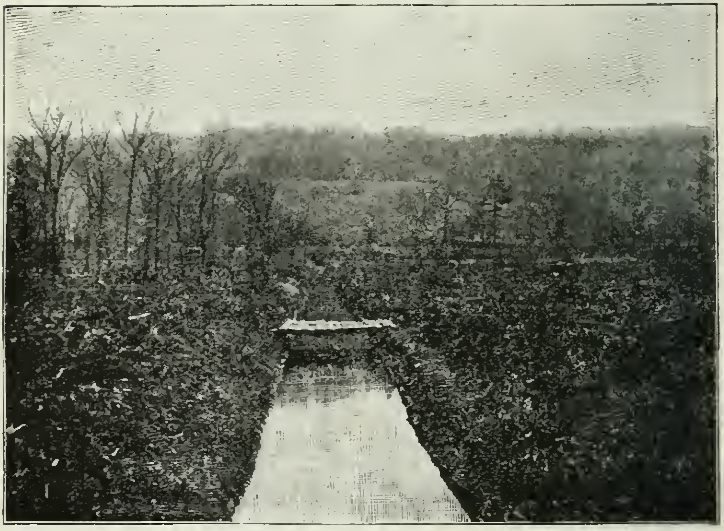

Fig. 33.

A ditch dug to drain a swamp.

The soil is all the more valuable because of the slopes of valleys. Were it not for them the water, after a heavy rain, would stand too long upon the ground. But where there are slopes, down which the water can run freely, it quickly flows off and does not drown the crops or make the region unhealthy for man and animals.

The great importance of this matter is shown when farmers buy land. One of the first things that they inquire about is *drainage*, that is the slopes which allow the water to run off quickly.

If the water does not flow freely away, they even dig channels in order to carry it off. Sometimes these are left open, as in the picture (Fig. 33), and they are then called *ditches;* but, more often, when the channels are small, tiles are placed in the bottom, forming a kind of pipe, and then the earth is thrown back again. Such channels are known as *drains.* The water finds its way into the pipes, through small openings that are left for this purpose, and flows away. Good drainage is so important that men are often willing to incur great expense in order to secure it.

In some places the land is so nearly level that the standing water produces *swamps.* There are thousands of swamps in this country, and great sums of money are spent in digging ditches to drain them. This makes the swamp dry ; and since the soil in such places is very fertile, a great deal of land that was once of little value is now changed to rich farms.

The slopes of valleys are valuable for drainage.

Valleys have had a great influence upon the roads of a country. For instance, in going across mountains men generally follow a valley, going higher and higher until they come to what is called a *mountain pass* (Fig. 34), which is nothing more than a valley between mountain peaks. After crossing this, they go down another valley on the other side of the mountain.

Railways also cross mountains through the valleys and over the lower passes ; they wind in and out, often making sharp curves in order to avoid cutting directly through the rock.

Even in hilly regions it is usually easier to get from one place to another by travelling in the valleys. In the lower parts, near the streams, the land is most nearly level; but as soon as one attempts to go directly across the country, the roads become rough and hilly.

On that account, when white men first came to this country and settled among the hills and mountains, they built their roads in the valleys, often quite near the streams. Men do the same thing still.

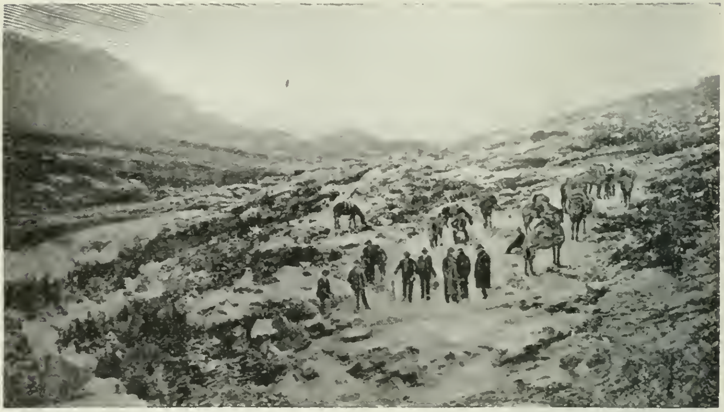

Fig. 34.

The White Pass, over the Rocky Mountains, on the way to the Klondike gold diggings.

Where the country is more level, as upon a plain, it is not so difficult to travel in a straight line; but even in such places both the waggon roads and the railways are often built round a small hill rather than over it.

The location of waggon roads and railways depends on the valleys.

We have seen that hills and mountains afford many beautiful views. But it is not necessary to go to the mountains to see the fine views. You may see them in almost any valley or plain. Even a field of

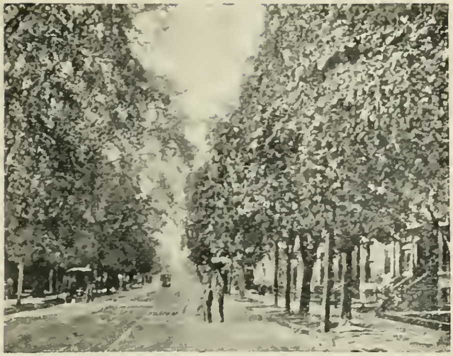

FIG. 35.
A beautiful street scene. Sherbourne St., Toronto, Ont.

green grass, such as may be seen in city parks, and in the country, is beautiful. This is particularly true in the early spring, after the long, cold winter.

Those who live in small towns or cities may find streets where the trees have grown so tall that they nearly meet overhead (Fig. 35). As one looks along such a street, he can scarcely help exclaiming, "What a magnificent archway!"

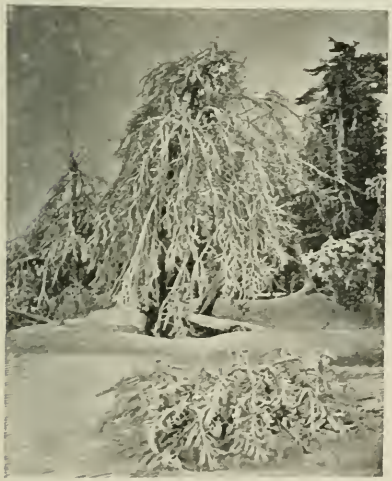

FIG. 36.
A winter scene in Montreal Park, showing the beautiful effects of the branches covered with snow and ice.

In the country, also, there are many beautiful sights, such as the variously colored fields, the waving grain, the graceful trees, and the shady roads.

The views change from time to time. They are not the same at noon as in the late afternoon when the sun is casting long shadows. In the spring the plants are fresh and bright: in the autumn they are prettily colored: in the winter the damp snow clings to the trees, bushes, fences, and houses until everything is robed in white (Fig. 36). Again, the rain freezes to the trees, and when the sun appears, everything sparkles in the bright light as if it were covered with a thousand jewels.

It is not necessary, then, to travel far in order to find beautiful views; they are to be found everywhere, not only among the mountains, but on the hills, in the valleys, in the country and in the city.

The hills, mountains, and valleys are very beautiful.

V. RIVERS

Every heavy rain causes the water to collect, here and there, and flow down the slopes. At first only tiny rills are formed; but these unite to form the little streams and brooks.

In some places a brook is narrow and deep, in others broad and shallow; here it flows swiftly, and there slowly. Place a chip or a boat in such a brook, and it floats quietly in some places, and then, coming to a *rapid*, it is whirled along swiftly and perhaps upset (Fig. 37). Or it may float to a *waterfall*, where the water tumbles down from the top of a ledge, and then it is surely overturned (Fig. 38).

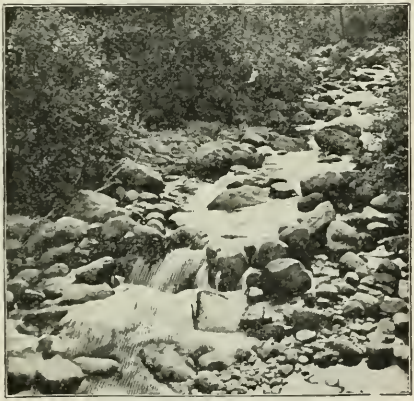

Fig. 37.

A noisy mountain brook, tumbling over its rocky bed.

There are large rivers in the world much like these little brooks, the main difference being in their size. But even such rivers are generally small at their beginning or *source*. Some of the largest have their sources far up in the mountains, where they are so small that a person may easily step across them.

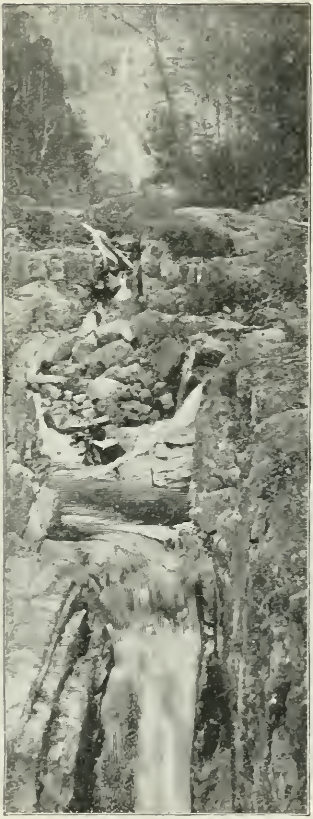

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FIG. 38.

A mountain torrent leaping over the ledges in rapids and waterfalls. Point to one of the falls. Find others in the other pictures of the book.

The water of these rivers may come from the melting snows: and as it dashes along, beating itself into foam by striking against the rocks, it is joined by other streams like itself. Often the water must rush round or leap over large boulders which lie in its path; and often it falls directly downward for many feet with a great roar (Fig. 47).

Great rivers at their source are usually no larger than a brook.

The water of a mountain stream seems to be quite helpless, with the great hard rocks all about it; but it never gives up its struggle with them. Rocky cliffs may reach far up into the sky on each side, and the slopes may be so steep that loose pieces of stone often fall into the water. But the torrent dashes these against one another, and grinds them against its rocky bed, until they are worn into pebbles. These pebbles are borne down stream and are slowly ground up into grains of sand, or even finer still so as to form clay.

If we should travel down such a stream, starting near its source among the wild mountains, we should find it constantly changing. In the first place, it gradually grows larger, because other streams, called *branches* or *tributaries*, enter it (Fig. 39). The *banks* become lower and the river grows broader and deeper. In places there may still be rapids and falls, but the country on both sides is not so steep and rocky as it was among the mountains. Now, houses, farms, and men are seen, and pasture land and fields of grain are on the banks (Fig. 40).

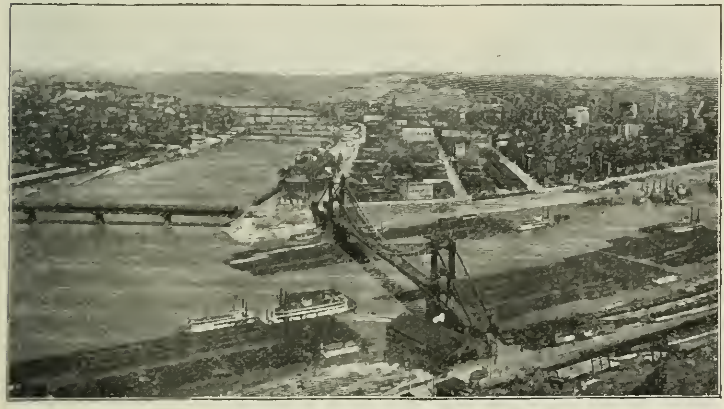

FIG. 39.

Two streams, the Allegheny and Monongahela, uniting to form the Ohio River.

At first, the slope of the *stream bed* was so great that the river hurried along faster than you could run. Now the water no longer flows rapidly enough to drag boulders or even pebbles; but it can still carry the sand and mud brought by the rain from the soil of the hillsides.

It has now been many days since this water left the

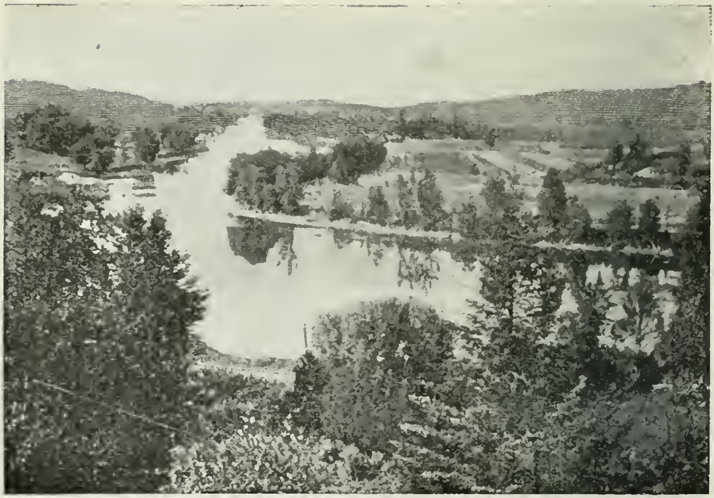

Fig. 40.

The St. Francis River in Quebec, flowing through a splendid farming country.

mountains. The river has become so wide that a long bridge is needed to cross it (Fig. 41), and so deep that one cannot touch its bed even with a long pole.

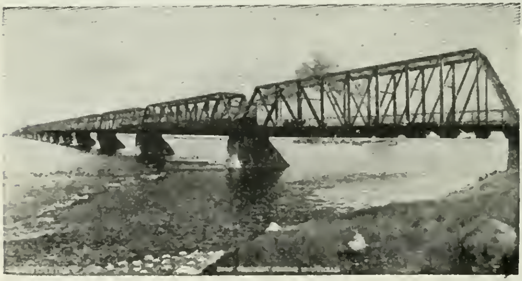

Fig. 41.

The Victoria Jubilee Bridge across the St. Lawrence River at Montreal. Notice how small the train of cars appears on it. This will show how long it is.

At last, perhaps weeks after it started, the water approaches the ocean; and now the downward slope of the river bed is so gentle that the *current* cannot drag even grains of sand; but it still carries fine bits of rock-mud with it. These bits, or particles, may be so tiny that if you were to place some of the muddy water in a glass, it would take hours for all of them to settle and leave the water clear. When the river enters the quiet waters of the ocean, even this mud, or *silt*, settles.

We have followed the river from the *source* to the *mouth* where it empties its waters into the great ocean. At first it was a little stream, but by the addition of water from many tributaries it has grown larger and larger, until at its mouth it may be miles in width.

A great river is broad and deep at its mouth, and its current is very slow; but it carries fine particles which form a sediment even to the ocean.

We have been considering a large river that had its source in the mountains; but others are much smaller, and many do not start in the mountains. Some empty their water into other rivers, being tributaries, and others enter lakes rather than the sea. They may also have low, soft banks instead of high, rocky ones, and there may be no rapids and falls. But no matter where their sources and mouths may be, or what other differences may exist, they are, in many ways, much like this river.

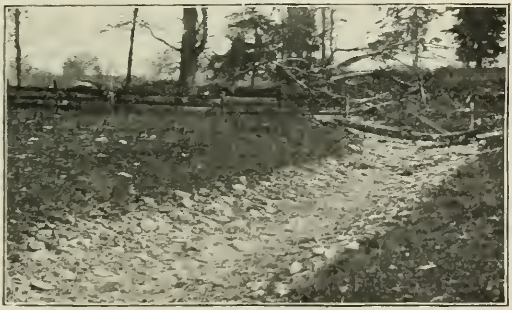

FIG. 42.

A pebbly brook bed which is filled with water when the rain falls or the snow melts, but is often dry in summer.

Where does so much water come from? Taken up from the ocean, it falls from the sky in the form of rain or snow. But we all know that small streams dry up and disappear soon after a rain. Even large brooks may become quite dry in summer (Fig. 42). Why, then, do not great rivers also dry up?

One reason is that many rivers have a constant supply at their sources. That this is true of a stream starting in a high mountain is clear, because we have seen (p. 25) that the snow in such places never entirely melts away. It is also true of streams that have their sources in lakes and swamps.

Then, again, all the rain-water does not flow off; some sinks into the ground. There is a great deal of water in the ground, and it is this that men find when they dig wells. This underground water trickles through the soil, and through crevices in the rocks, often bubbling forth as a *spring*, weeks after it has fallen as rain somewhere else. Most large rivers are supplied with water from hundreds and even from thousands of such springs.

It is to be remembered, too, that a great river, with its many tributaries, flows through a very large tract of country, so that when it is not raining in one part, the rain may be falling in another. Thus, while one tributary carries little water, heavy rain may keep others full, and this flows into the main stream, preventing it from drying up. Still, even the largest rivers are affected sometimes by an abundance of rain, or by the want of it.

If a heavy rain falls, or if the snow melts rapidly, so much water may flow into a river that it rises and overflows its banks (Fig. 43). Those who live near such streams are in danger of being drowned by the floods, and in some places men have built banks of earth, called *levees*, to keep the water from overflowing the towns and farms.

The supply of river water comes from rain or melting snow, from lakes and swamps, and from underground.

Every one has seen muddy water flowing in gutters, or in rills on the hillsides. Great quantities of soil are washed away in this manner, as has been shown (p. 10). But what becomes of it all?

If you have seen a sidewalk or a field flooded with water, you perhaps remember that when the flood disappeared, a thin layer of fine mud was left. This mud was carried along by the current until it reached a place where the water stood almost still, then it slowly settled. The same thing will happen if some muddy water is allowed to stand in a glass for a time. Try it.

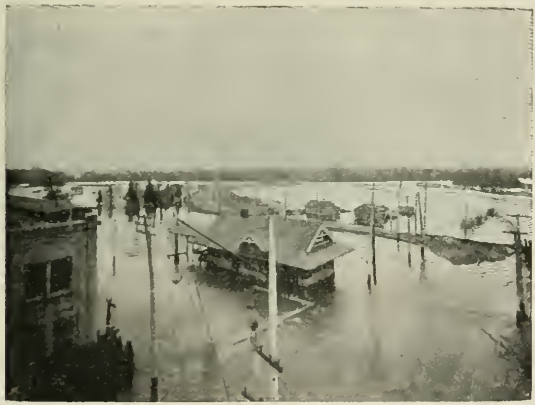

Fig. 43.

Photograph of a river flood on the Grand River, at Brantford, Ont., which has covered the railway tracks. Tell what you see in this picture.

In much the same way, when there is a river flood (Fig. 43), the water spreads out on both sides of the river in a great, thin sheet, flowing slowly along and depositing a thin layer of mud. Each flood adds a layer, making the land higher, until, after many years, it is lifted considerably above the usual level of the river. Such land is generally a level plain; and since it is made by river floods, it is called a *flood-plain*.

Many pieces of land have been made in this manner, and you have perhaps seen some of them. Near the banks of streams the valley is often flat, and the hillsides that bound the bottom of the valley begin to rise at a considerable distance from the water (Fig. 44). This level land is usually a flood-plain. Near small streams such plains are generally narrow; but in the Mississippi and Nile valleys the flood-plains are many miles in width. Farmers like this soil because it is very fertile.

Some of the sediment carried by rivers forms flood-plains.

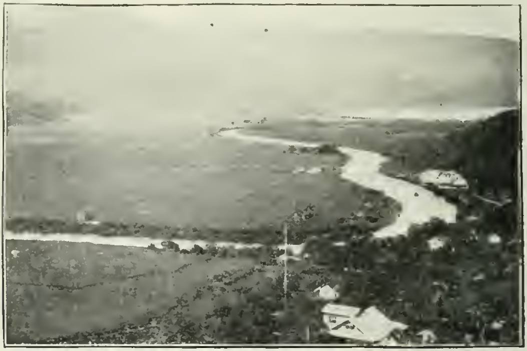

Fig. 44.

A small flood-plain between steeply sloping valley sides.

Much of the sediment is carried on until it reaches a lake or the ocean. Here, opposite the river mouth, the water is generally quiet, so that the mud sinks to the bottom. At first only enough sediment is deposited to form low, swampy land; but this is gradually lifted higher and higher, by layers of mud from each flood, until it becomes high enough to make dry land.

These plains at the mouths of rivers form what are called *deltas* (Fig. 45). Many streams have such wide deltas that one cannot see across them, most of what has formed the sediment having come from fields, hills, and mountains, perhaps hundreds of miles away. The surface of the delta is a plain, because it cannot be built any higher than the floods themselves have reached.

From year to year more sediment is deposited, and the land is built farther and farther into the water, so that deltas are constantly growing. The slope of the river bed is usually so gentle that all the water cannot flow out in a single channel. For this reason it enters the sea through several arms, cutting the delta into several parts.

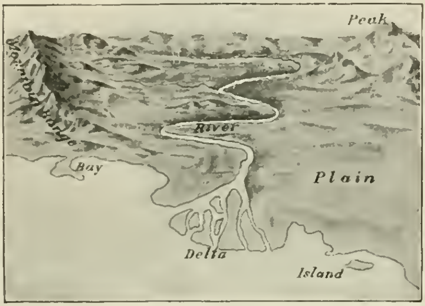

FIG. 45.
This picture shows a river delta. What else do you see in the picture?

Some of the sediment deposited by rivers forms deltas at their mouths.

A river entering the sea may receive water brought by hundreds of tributaries. Thus the rain that falls in places even hundreds of miles apart may at last be brought together in a single main stream. Such a main stream with all of its tributaries is called a *river system* (Fig. 46). For instance, we speak of the St. Lawrence River system, meaning the St. Lawrence, Great Lakes, and their tributaries.

All the country which is drained by a single main stream is called a *river basin*. Thus all the land drained by the St. Lawrence River is included in the St. Lawrence basin.

One should not think of this as a true basin. A real basin, as a wash basin, has a rim extending all around it. The rim of a river basin is the divide; but there is no divide, or rim, near the mouth of a river, since the water runs out into the sea. If it were a true basin, with a rim all around it, the water would collect and form a lake.

All the land the waters of which are drained by a single river is called a river basin, and all these streams together form a river system.

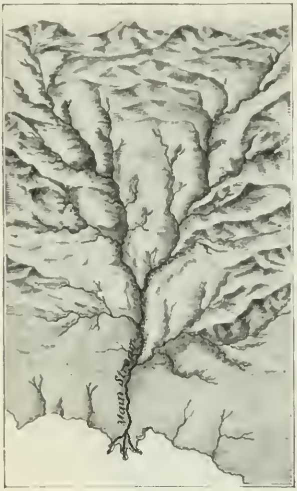

Fig. 46.

Picture of a river system and river basin. Point to some of the tributaries; to their source; to the mouth; to the delta.

Some ways have already been mentioned in which rivers are of much use. They build flood-plains and deltas, thus making some of the most fertile land in the world. Rivers also furnish water to plants, animals, and man.

On page 6 it was shown that plants sometimes wither during hot weather, because the soil is dry. But near rivers the soil is usually kept so moist that plants grow well even in dry weather.

There are some places in the world where there is not enough rain for crops to grow. The people in such regions sometimes lead the water out of the rivers into ditches, through which it flows for long distances. Then it is allowed to spread out over the thirsty soil, so that plants may thrive. This guiding of water is called *irrigation*, and in some places no crops can be grown without it.

Many people and animals depend on rivers for all the water they use. Even whole cities obtain their drinking water solely from rivers.

Streams not only bring water where it is needed, but they also carry it away when it is not wanted. A river is really a great ditch for draining the land, so that whenever the snow melts rapidly, or a heavy rain falls, the rivers quickly remove the water. They also carry off the filthy water, or sewage, of many towns and cities.

Rivers supply water where needed, and remove it when not wanted.

The water of rivers is also used for turning wheels to help in the making of many articles, such as cloth and flour.

You have perhaps noticed how windmills work (Fig. 68). The *wind* blows the large wheel round and round, and it is so connected with other wheels that it can pump water, or grind corn, or turn a saw for sawing wood. Likewise *steam* is used to turn the wheels of a railway engine, so that it drags the heavy cars along.

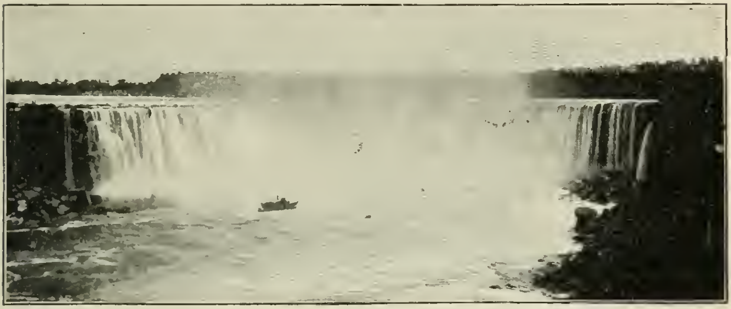

Fig. 47.

Niagara Falls, the greatest waterfall in the world, 160 feet high, from which many streams are drawn to drive wheels on both sides of the river. These are of great power, and must be enclosed in very strong buildings, and so are out of sight.

River water is made to do work in much the same manner. Where there is a swift current, or where there are falls, as the Niagara Falls (Fig. 47), it is often easy to run some of the water off to one side through a canal or pipe. The water, racing rapidly along, strikes a wheel (Fig. 102) and makes it whirl round. This wheel, being connected with others, causes them to turn also, much as one wheel in a clock causes another to revolve.

Thus machinery is set in motion by which logs are sawed into lumber, grain is ground into flour, cotton is made into cloth, and many other kinds of work are done.

The water that furnishes the power to turn the wheels is called the *water-power*, and the buildings in which such manufacturing is carried on are called *factories* or *mills*.

In many places the river water does not flow fast enough to strike a wheel with much force; water-power is found mainly in rivers with swift currents, and especially near rapids and falls. Here mills have been built, and then cities have sprung up (Fig. 105, p. 111).

Rivers also supply water-power for manufacturing.

There is still another way in which rivers are extremely valuable. It has always been difficult to find a convenient means for carrying goods from one place to another. In some places there are no roads; and even where there are they are often hilly, rough, and muddy.

Yet most of the articles that we use every day, like sugar, flour, oil, meat, coal, lumber, and clothing, have been carried long distances, sometimes thousands of miles. Even if the roads were excellent, it would take a great deal of time, and cost much money, to bring these things in waggons. To carry them by railway takes less time, but is expensive.

A broad, deep river, or a lake, which is a river dammed up (p. 51), is really one of the finest roads in the world. To be sure no waggons or cars can be drawn over it, but boats move there with ease. A river or lake boat can carry as much as scores of waggons or cars (Fig. 48), and many may be going and coming at the same time, so that a large river or lake is equal to several railways: it costs little, too, to keep it in repair.

For these reasons carrying goods by boat upon rivers and lakes, or *inland navigation*, is a very important business. Indeed, it is so important that in many places broad ditches, called *canals*, have been cut in the soil and rock in order to carry goods by boat (Fig. 108, p. 114).

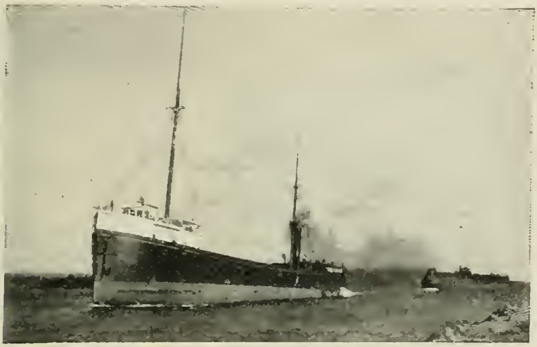

Fig. 48.

On Lake Huron. A steamer carrying a heavy load, towing a barge also heavily loaded, through the lakes and rivers of the St. Lawrence system

Before the railways were built, — which is no longer ago than when your grandfathers were boys, — boats were used for carrying all sorts of articles from place to place. Even to-day, when there are so many good waggon roads and railways, it is cheaper to carry grain and other products on boats than in cars, and this is often done.

We see, then, why many people have preferred to build their homes near rivers. A farmer prefers to live near a good waggon road, or near the railway station, so that he may easily send his produce away; and, for the same reason, people have always liked to live near a river, which is a good road or *waterway*. It is mainly on this account that many of the large cities of the world stand on the banks of large rivers. Do you know of any such cities?

Rivers are also of value for navigation.

VI. PONDS AND LAKES

Rivers supply towns and cities with water, and also turn the wheels of factories ; but some streams become so low in summer that they lack water for these purposes. To prevent this difficulty men often build dams of wood, earth, or stone across the rivers, and in this way collect sufficient water to make ponds (Fig. 49). When the rivers are high, these ponds are filled, and enough water gathers to last through the dry season.

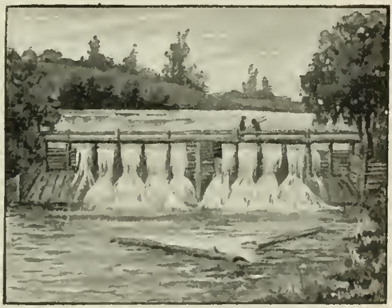

Fig. 49.

A mill-dam on the Humber River, near Toronto.

Probably you have seen such a pond as this. Or you yourself may have made small ponds by building dams of mud or leaves across brooks and gutters.

Lakes may be made in a similar manner, for they are like ponds, only larger. Sometimes they are several hundred miles in length, and perhaps one hundred miles in width. Some of the largest in the world, the Great Lakes between Canada and the United States, were made by dams formed ages ago, across parts of the great St. Lawrence River system.

Most ponds and lakes have been made in much the same way. That is, the water has gathered behind dams across streams.

But in most cases these dams have not been built by men. Beavers have made a few of them. There used to be a great many of these little animals in this country, and some are still left. Since they prefer quiet, shallow ponds in which to live, they gnaw down trees and build dams with the logs; then they build their homes in the water thus collected (Fig. 50).

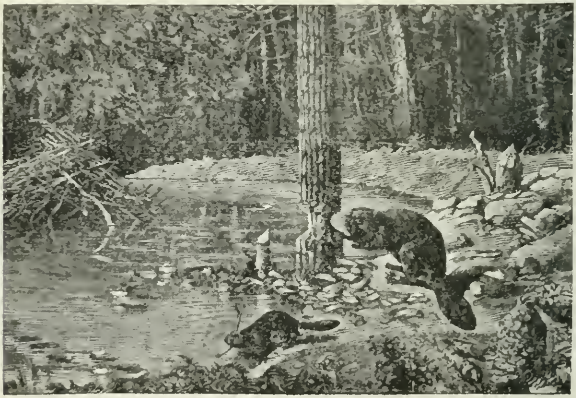

FIG. 50.

Beavers building a dam across a stream, to form a pond, or beaver-meadow as it is called.

In other places, where the sides of a valley are steep, great masses of rock and earth have sometimes fallen, in the form of avalanches, and blocked or dammed the streams.

Also it was stated (p. 18) that the earth has been warped or bent upward in some places, forming low ridges, or even lofty mountain ranges. In this way the ground has sometimes slowly risen across river valleys, making high dams, as on the Niagara River; in such cases large lakes have been formed.

There are many other ways in which dams have been built, especially by means of glaciers, which you will study about in due time.

Most ponds and lakes have been formed by dams across valleys.

Since a lake is generally a part of a stream, it is evident that water must flow into it. The river that flows into a lake is called the *inlet*, and that which flows out is called the *outlet*. There are also many streams entering from the sides. Each of these brings mud and fine sand, which settle in the lake, slowly filling it. At first deltas are built opposite to the stream mouths; then, in time, the whole lake is filled and changed to a swamp. Many a swamp is really the last stage in what we may call the life of a lake.

The surface of a lake appears to be level; but one part is really slightly higher than the other, otherwise the water would not flow out of it. The higher part of the lake, near the inlet, is called the *head of the lake*, the lower part, near the outlet, the *foot of the lake*. It is correct, then, to speak of going up or down a lake, just as we speak of going up or down a river.

Some lakes have no outlets, because there is so little water that the basin cannot fill up and overflow. This has a very peculiar effect upon the water, for in time it becomes salt. Probably you have heard of the Dead Sea and the Great Salt Lake of Utah. These are salt lakes of this kind, and no one would drink their water, even if he were dying of thirst.

But why do such lakes become salt? There is some salt in all water, even in that which we drink, although so little that we do not notice it. When water flows into a lake, the salt is carried with it. If there is no outlet, the salt can go no farther; but each day some of the water is changed to vapor and carried away in the air. As the particles of salt cannot go off in this way, they remain, and increase in number, until, in time, the water becomes so salt that we have a *salt lake*.

Most lakes have inlets and outlets; but some, having no outlets, become salt.

The land at the margin of a river is called the *bank*, but that along the margin of a lake is called the *shore*. In one place the lake shore may be low and wet, and overgrown with swamp plants. In another it may be pleasant to walk upon, being formed of sand and pebbles brought there by the waves. This kind of shore is called a *beach* (Fig. 51).

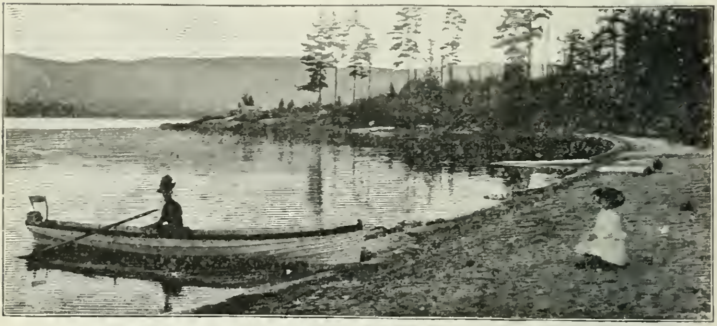

Fig. 51.
A sandy beach on a lake shore.

Many lake shores are regular, but many more are irregular. In some places points of land, called *headlands*, extend into the water (Fig. 52). If small, these are called *points* or *capes;* if large, *peninsulas*. A narrow neck of land joining two larger pieces is an *isthmus*. Bodies of land entirely surrounded by water are known as *islands*.

The water that is partly shut in between two headlands is called a *bay*. When a bay has deep water, and is so nearly surrounded by land that vessels can enter it and

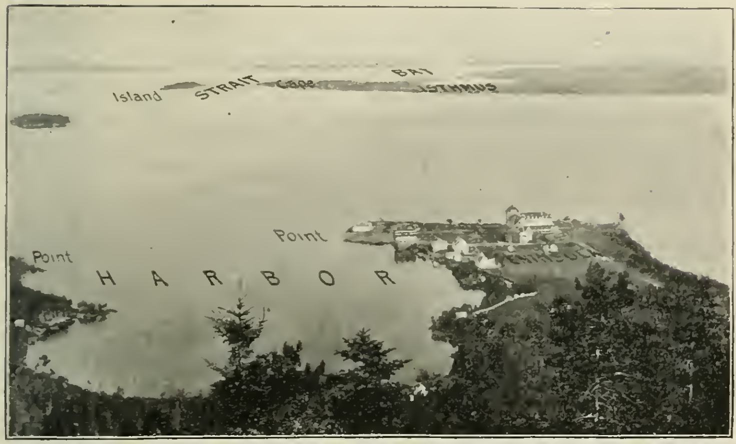

FIG. 52.

A view on Moosehead Lake. Learn what each of the names means.

be protected from the wind and waves, it is called a *harbor.* A narrow strip of water connecting two larger bodies of water is known as a *strait.*

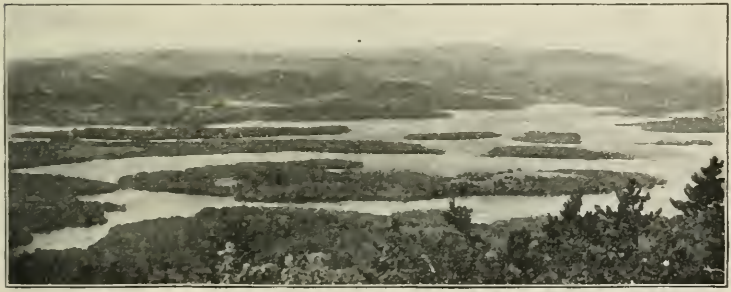

FIG. 53.

How many of the features just mentioned can you find in this picture? Find some also on Fig. 60.

When the water gathers behind a natural barrier or dam to form a lake, it enters many valleys, forming bays and harbors, with capes and perhaps islands between. This is the chief reason for the irregular shores of many lakes. If you will make a little valley in clay, with two or three tributaries entering, then put a dam across it and fill it with water, you will see just how this is done.

The shores of lakes are often irregular, producing bodies of land and water of many shapes.

Ponds and lakes are useful in many of the same ways as rivers are. They help to keep the ground moist; they furnish water to cities, and they supply water to turn the wheels of factories. Besides this, many valuable fish are caught in lakes, and much ice is cut from their surface.

Again, like rivers, lakes are important waterways (p. 48). Upon large lakes, like the Great Lakes, hundreds of vessels are going and coming, carrying men, grain, coal, lumber, and countless other things. On this account many people have settled on the shores of large lakes; and, as a result, many towns and cities have been built there. Can you tell of any?

The shores of lakes are often very beautiful, and many persons go to them in summer to hunt, fish, and canoe. There are hotels there, too (Fig. 52), and some lakes are important summer resorts.

Lakes supply drinking water, water-power, fish, and ice. They are also useful for navigation and for summer resorts.

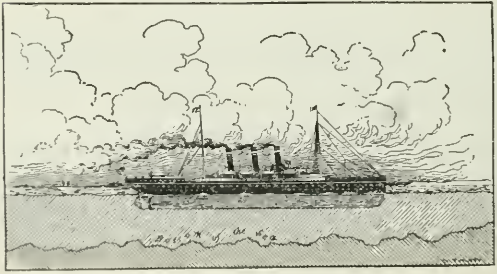

Fig. 54.

A picture to show how deep a vessel sinks in the water.

How are vessels loaded with goods? And again, how can these cargoes be unloaded? Waggons may be driven beside a railway car, and be filled or emptied speedily. But a large boat sinks down many feet into the water (Fig. 54), so that if it came near the shore, it might strike the bottom and be wrecked.

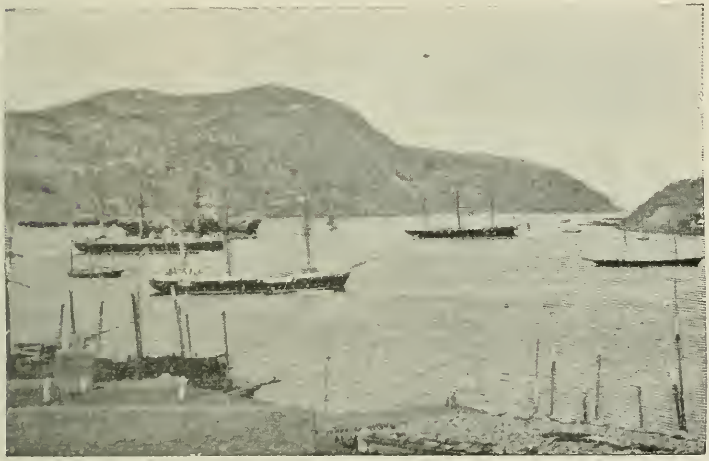

Fig. 55.

Harbor of St. John's, Newfoundland. Note the narrow entrance, through which vessels can pass, and lie in safety at anchor or alongside the wharves, secure from the fierce storms of the Atlantic Ocean.

Fortunately, here and there along the shore, there are small bays or harbors with deep water. The opening is large enough for vessels to enter easily, but small enough to keep out the fierce waves. Here we have a fine *harbor* (Fig. 55).

From the shores of the harbor men build piers of wood or stone, called *wharves*. These reach into the deeper water, where ships may be fastened or *moored* to them. Waggons can be driven on to the wharves, so that this forms a convenient and safe place for loading and unloading vessels. Such a harbor often determines the situation of a city.

Large cities are sometimes found on parts of a lake shore where there are no such natural harbors. In that case harbors have to be *made*, even though it is expensive to do so. Walls of rock, or rows of posts driven deep into the ground, are built in such a way as nearly to enclose a body of water, very much as capes enclose the water of a natural harbor. Such a wall is called a *breakwater* (Fig. 56), because it breaks the force of the waves, and prevents them from entering the space within.

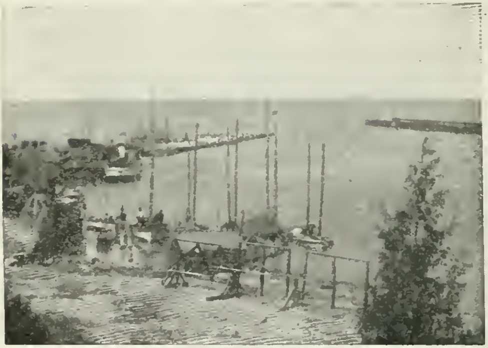

FIG. 56.

A view of Southampton Harbor, on Lake Huron, showing a breakwater built in a place where the coast has no natural harbor.

When a harbor is not deep enough for vessels to enter, it is necessary to dig out, or dredge, as it is called, the dirt and rock from the bottom. This has often to be done in the inlet and outlet streams of a lake.

Harbors are places where vessels find safety from storms and where cargoes are loaded and unloaded with ease.

VII. THE OCEAN

The great rivers, starting as tiny brooks, grow into larger and still larger streams, until, after days and perhaps weeks, they mingle their waters in the ocean. No doubt much of the rain falling in your neighborhood finally reaches the sea in this way; and if you could float along upon it in a light boat, in time you too would reach the ocean. How large is this body of water, and what are some other interesting facts about it?

Fig. 57.

A view of the great ocean. Notice the sailing vessel in the distance on the right-hand side.

We can see across most lakes, and can sail across even the largest in a day or two; but the ocean is far larger. One could sail upon it in a straight line for weeks without coming to any land (Fig. 57). It is so great that it surrounds all the land on which people live, and no matter in which direction you might travel, if you went far enough you would come to it.

If you were to set out to reach the ocean, the journey might last many days. It might be necessary to go up hills and across valleys, to pass around lakes, and possibly over great ranges of mountains. You would be surprised to find how much land there is, and how many farms, villages, towns, and cities there are.

But there is far more water than land. In fact, the water covers about three-fourths of the earth's surface and the land only one-fourth. If one were to travel entirely around the earth, he would probably spend much more than one-half of his time upon the ocean.

The ocean is so immense that the great rivers in all parts of the earth pour their water into it. Their mouths may be thousands of miles apart, yet the sea stretches far enough to reach them all.

The water of the ocean is too salt to drink; but river water is fresh. Since there are many thousands of rivers entering the sea, would you not expect that their water would make the ocean less salt? It does do so near the mouths of great rivers; but soon it becomes mixed and swallowed up in the salt water. This is another way of showing the size of the ocean, for all the river water that enters it is not enough to make it fresh.

The salt water of the ocean surrounds all the land.

Different parts of the ocean have different names. For instance, the *Atlantic* Ocean is the part lying between Canada and Europe, where the British, French, German, and other peoples live. We buy many articles from these countries, such as woollen cloth, knives, silks, and carpets; and they likewise purchase other articles from us, such as wheat, timber, meat, and dairy products. The way to reach these people is to cross the Atlantic Ocean. The fastest steamers need five or six days for the voyage.

In all parts of the earth the ocean is a great highway. It is so large that thousands of ships are travelling upon it in all directions, carrying people, cattle, grain, fruit, iron, different kinds of machines, and many other things. Although there are so many ships, the ocean is so large that one ship may sail for many days without meeting another.

Ocean navigation is therefore a great business, and many thousands of men are engaged in it. Most of the ships used are larger than the vessels upon lakes, and they sink deeper into the water (Fig. 58). Very large ones, when loaded, reach down about thirty feet below the surface.

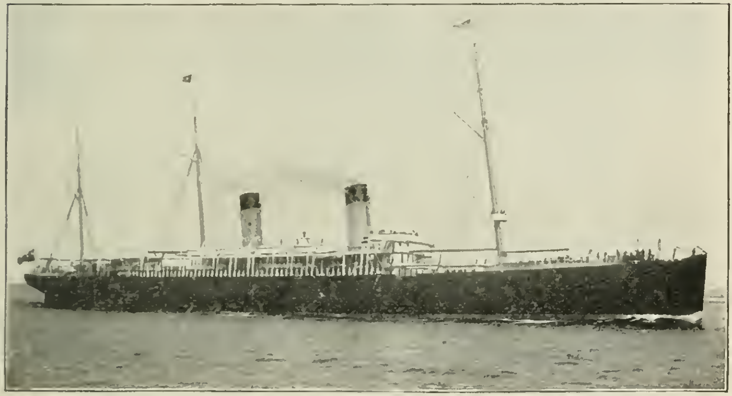

Fig. 58.

A large ocean steamer, one that sails between America and Europe, that will carry as much freight as 500 railway cars. See how small the men appear.

Of course the ships meet with storms upon the ocean, as upon lakes. In fact, the ocean waves are at times so high that they sweep over and almost cover up the largest vessels (Fig. 59).

The coast of the ocean resembles the lake shore in having capes, peninsulas, islands, isthmuses, straits, and bays

(Fig. 60). We have learned (pp. 18 and 30) that the land in places has been raised or lowered. When it is lowered near the seacoast, the water enters the valleys and partly covers the land, as it does in lakes (p. 56). This of course makes an irregular coast.

Fig. 59.

Ocean waves during a storm.

Naturally, on such an irregular coast there are harbors

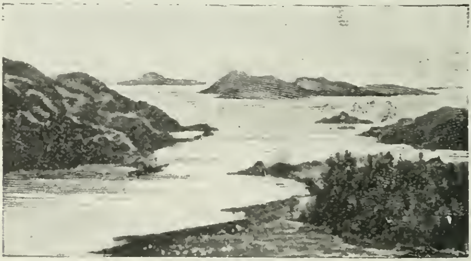

Fig. 60.

A picture of Bras d'or Lake on the Island of Cape Breton. Here the land has been lowered so that the salt water of the ocean has entered the valleys, covering their bottoms, but leaving the hilltops as islands, capes, etc.

which large vessels enter, and in which they are safe from storms. For example, Halifax harbor is so broad and deep that many ships (Fig. 113) are found in it at all times, either loading or unloading their cargoes, or waiting for storms to pass.

Goods are brought to Halifax across the Atlantic Ocean, not only from Europe, but also from all parts of the world. It is quite possible that the coffee and sugar which are used on your table, and the bananas and oranges which you have eaten, were brought over the ocean and unloaded in this harbor. So, also, at the harbor of Vancouver, in British Columbia, tea and silk and other articles are brought from China and Australia across the Pacific Ocean (Fig. 61).

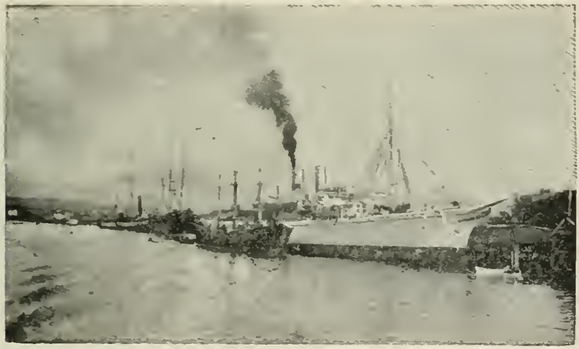

Fig. 61.

A view among the ships in the harbor of Vancouver, B.C. The large white steamship is unloading tea from China and Japan.

Since the ocean easily connects such harbors with all parts of the world, it is natural that large cities should spring up where the best ocean harbors are found. It is partly on this account that Montreal, Halifax, and St. John have become such large cities; and that Victoria and Vancouver are growing so rapidly.

Vessels come toward these *seaports* from all parts of the world; but it is often difficult to tell just where to enter the harbor, especially at night. Ships are in danger of going out of the right way, and of running upon rocks, or *reefs*, in the shallow water near the coast (Fig. 62). On this account, tall lighthouses are built on many islands and capes, so that captains may know by the lights which way to go in order to enter the harbors (Fig. 63).

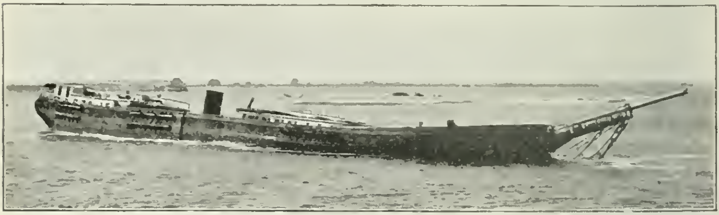

Fig. 62.

A vessel wrecked by running aground upon a shallow reef.

The ocean is a great waterway, connecting different parts of the world.

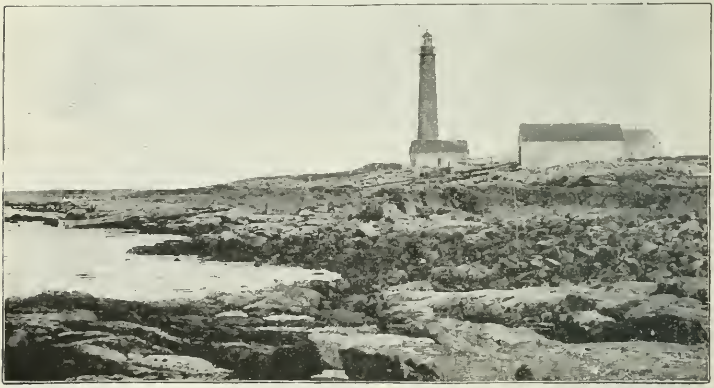

Fig. 63.

A lighthouse on a rocky point. A bright light is placed at the top of the tower so that it may be seen far away.

Not only are goods carried on vessels, but many men go out in them, often beyond sight of land, for the purpose of catching the fish which live in such great numbers in the sea. Instead of hooks and lines, long nets are often used, and in them so many fish are caught that the vessel is loaded down with them. No doubt some of the mackerel or herring that you have eaten have been caught in this way. Figure 67, p. 70, shows a vessel that is used to catch ocean fish.

In summer the ocean shore is cooler than the land far away from the sea. This is because the air is cooled as it passes over the water. Many people therefore go to the seashore to avoid the hot weather, just as others go to the mountains. Here they spend day after day climbing about over the rocks or walking upon the clean, sandy beach, breathing the fresh air, enjoying the beautiful scenery, and bathing in the cool salt water (Fig. 64).

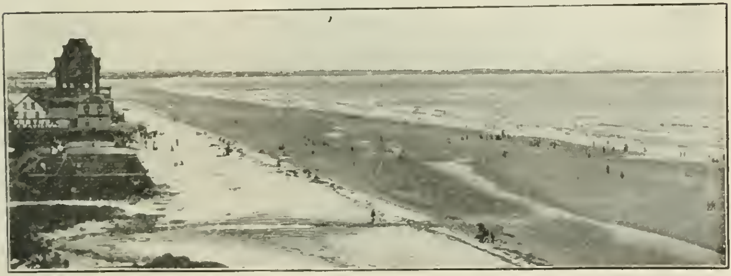

Fig. 64.

A seaside summer resort. Notice the large number of summer visitors strolling over the cool, hard beach, or bathing in the shallow water.

On this account many houses, and even towns, have been built at those places along the seashore where people wish to spend their vacations. There are large hotels to accommodate the visitors; and in the summer these places are crowded; but very few people remain at the *summer resorts* during the winter.

There is another way in which the ocean is even more useful to man. It is the sea-water which supplies us with moisture, so that there can be rain. If it were not for the great ocean, very little rain would fall. Thus every one is deeply indebted to the ocean, even though he may live thousands of miles from it. You will learn soon (p. 71) how its water reaches us in the form of rain.

The seashore is a popular summer resort; the ocean water supplies food and makes rain possible.

Rivers, lakes, and the ocean present many beautiful views. You may have observed that in cities, where people plan fine parks, they arrange, if possible, to have a lake or stream as part of the scenery. A body of water, even if but a brook, greatly improves a view.

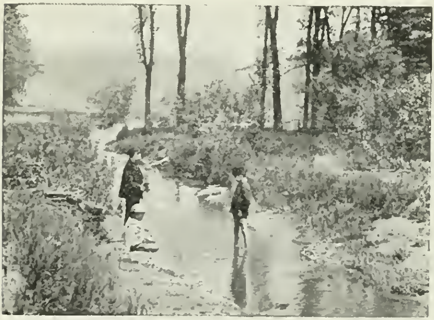

FIG. 65.

A pretty brook in Rosedale Park, Toronto.

A brook is a beautiful object (Fig. 65). How pleasant to see its green banks, to listen to its rippling waters, and to watch its tiny rapids, whirlpools, and falls, as it travels onward to the ocean!

Rivers are not less attractive; like the brooks, their rushing waters seem to tell a story, and one loves to linger by them, to listen and to look. At times, when swollen by floods, they are wild and boisterous; again they are quiet, peaceful, and beautiful. They wind in and out among the steep and wooded hills; now they flow along noiselessly, then they rush over rapids and falls with a roar; here their banks are low and green, there they are high, steep, and rocky.

The lakes and the ocean are sparkling sheets of silvery water, often dotted with white sails. Sometimes the color is green, at other times it is blue; and when the heavy clouds hang over it, it is dark and gloomy. There are beautiful sunrises and sunsets to watch; and one can see the storms come and go, with the waves dashing into the whitest of foam. In fact, the water, the sky, and the coast are always changing in appearance, so that the lake shore and the seashore are among the most attractive of places.

The land and the water together furnish many beautiful views.

VIII. THE AIR

Since air cannot be seen, people often forget that it really is something; but a fire will not burn without it, and plants, animals, and men must have it to breathe. In fact, drowning means nothing more than being smothered under water, where there is not enough air to breathe.

This is proof that the air is really something, even though it cannot be seen; and you can prove the same thing in other ways. For instance, if you stand with your face to a breeze, you feel the air moving. Sometimes this movement of the air, which we call *wind*, is so rapid that it blows down trees and houses.

Here is an experiment to prove that the air is something and that it fills space.

Find an empty bottle without a cork and sink it in water with the open end up. Notice the gurgling noise as the bubbles of air rise to the surface while the bottle slowly fills. Where does this air come from? And why does not the bottle fill more quickly? You see that although we called the bottle *empty*, it was really filled with air which could not be seen. The water could not enter the bottle until it pushed the air out, because the bottle could not be filled with two substances at the same time. So, as the air was leaving, the water was entering.

If the bottle is turned bottom upward, and pushed perfectly straight into water, the air will be given no chance to slip out, and then the bottle cannot be filled with water.

Air is something real and occupies space.

There is air all around the earth, and it extends many miles above us. This air, often called the *atmosphere*, is usually in motion, now in one direction, now in another, and it often moves fast enough to cause a breeze, or wind.

Even when the wind is not blowing near the ground, it may be doing so far above, where the clouds are. You can see that this is so, if you watch the clouds as they are driven along by the winds.

Let us see what causes the air to move. Heat has much to do with it. If you watch smoke in a room where there is a lighted lamp, you will see that it moves toward the lamp, and then rises above it (Fig. 66). Hot air also rises above a stove, or above a furnace through the registers; and during the winter, when there is a hot fire, the air near the ceiling of a room is much warmer than that near the floor.

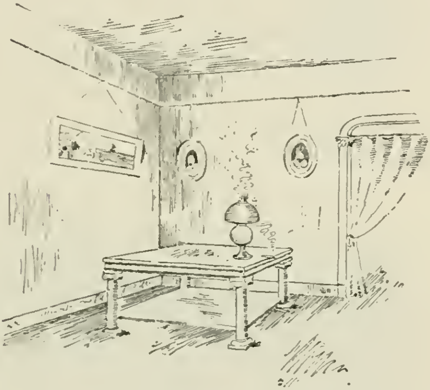

FIG. 66.
The smoke of a cigar rising from the table above the lighted lamp.

The reason for all this is, that when air is warmed, it is expanded and made lighter. Light objects, such as wood, will rise and float in water. So, also, when air is heated near a lamp, the warm air rises because it is lighter than the surrounding cold air, which, pressing in toward the lamp, pushes the warm air upward and thus produces what is called *circulation*.

Now we understand the cause of winds. The atmosphere in one place, perhaps to the north of you, is colder than that where you are. This colder air, being denser and heavier than the warm air, begins to push it away and thus moves toward you, forming a cold north wind.

People on the sea or lake shore often have such winds in summer, when, during a hot day, the air over the land becomes heated, while that over the water remains cool. The cool air then commences to move landward, and a cool sea breeze begins to blow.

Whenever the air is heavy in one place, and light in another, winds will blow toward the place where it is light. Since this lightness of the air is *usually* caused by heat, we say that

Most winds are caused by differences in the temperature of the air.

Winds are useful in many ways. They drive sailing vessels through the water, and they turn windmills (Fig. 68), which are often used to pump water from wells. But what is most important, they carry water over all the earth. At all times there is enough water in the atmosphere to fill many large lakes.

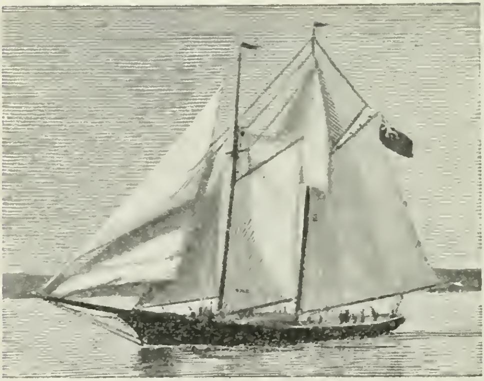

Fig. 67.

A sailing vessel driven through the water by the wind. This is a fishing schooner going out of the harbor of Lunenburg, Nova Scotia, after a load of fish.

You know that there must be some water in the air, for wet clothes hung out on a line become dry as the water passes off into the air.

FIG. 68.
A windmill.

Some of the water in the atmosphere enters it after every rainstorm, when the muddy roads and wet fields are drying; but most of it comes from rivers, lakes, and the ocean. You have already learned (p. 60) that the ocean covers about three-fourths of the surface of the earth. The air is taking water from all parts of it, so that each minute enough water to fill thousands and thousands of barrels is leaving the ocean and floating away in the atmosphere.

Another reason why we know that there must be a quantity of water in the air, is that much comes out of it in the form of rain, snow, hail, dew, and frost.

The air takes up water from one place and holds it, perhaps for many days, during which time the winds may have carried it hundreds of miles; by and by this moisture will fall. Thus it is by the help of the wind that rocks are wet and caused to change to soil, plants are made to grow, rivers are furnished with water, and animals and people are provided with water to drink.

Persons living where there is plenty of rain perhaps do not realize how important it is; but there are some parts of the earth where the air is so dry that very little rain can fall from it. In these places, called *deserts* (Fig. 69), only a few kinds of plants and animals can live, and but few people inhabit them.

The air takes water from the ocean, and the winds carry it about.

What causes water to rise into the air? And why can we not see it there? If you observe a boiling kettle, you will see that "steam" rises from it. In a short time all the water will be boiled away, passing into the air, where you can no longer see it.

The water in the kettle was a *liquid*, which could be seen; but heat has changed it to a *gas*, which, like air, is colorless and cannot be seen. Then, too, it is so light that it floats in the air. This water gas is called *water vapor*, and the change from water to vapor is called *evaporation*.

FIG. 69.

Camels crossing the desert. Notice how barren it is.

It is not necessary to boil water to make it evaporate: for all over the earth, where there is water, vapor is rising from it into the air. You can prove this for yourself by placing a pan of water on a table and leaving it for some days, and then noticing how much of it has evaporated. You may also plainly see the steam rising from the sidewalk, and passing off into vapor, when the sun shines out after a summer shower. It is in this way that the great amount of water, which every moment is rising from the ocean, is able to pass into the atmosphere.

Water vapor is obtained by evaporation.

When it falls from the sky as rain, the water vapor has changed back to water. What causes it to do this?

Have you ever noticed a glass or pitcher of ice water "sweat" on a hot summer day (Fig. 70)? The water that collects on the glass has not leaked through, for there are no holes in the glass. What has really happened is that the air near the dish has been cooled, so that the vapor has collected in drops on the cold surface of the glass. Drops would gather there just the same, even if no water were in the glass, provided the surface remained just as cold.

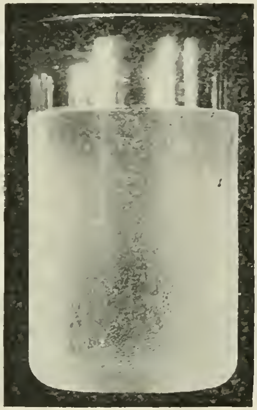

Fig. 70.

Little drops of water condensed from the vapor of the air on the outside of a glass of cold water.

On washing day, when a great deal of water vapor rises from the boiler, the windows are often covered with drops of water, because the vapor has been changed back to liquid, or *condensed*, on the cold window pane. Your own breath contains vapor, and you can change it to water by breathing on a cold window pane. So you see that if air loaded with vapor is cooled, some of the vapor is changed back to water.

There are several ways in which air may be cooled. You know that mountains are colder than the lower lands (p. 19): so that winds blowing over them are often chilled, and their vapor condensed. It is evident from this that mountains are an important help in causing rain.

Vapor may also be condensed when a cold wind blows against a warm one. Again, during summer the sun may shine down so hot that the air near the earth becomes warm. This makes it so light that it often rises high into the sky, where the air is so cold that the vapor condenses into rain. The summer thunder showers, which often come on hot afternoons, are caused in this way.

Vapor is condensed by the cooling of the air.

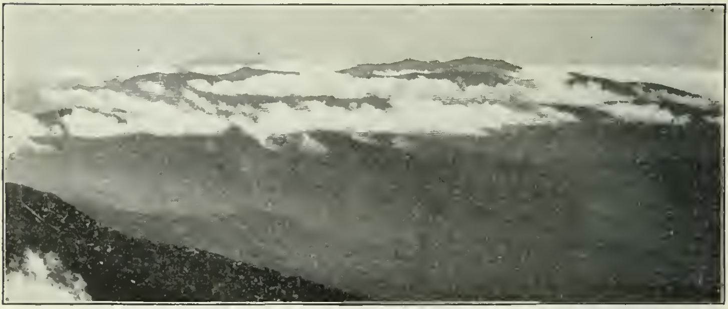

Fig. 71.

Clouds formed upon the mountain sides because the air has been chilled.

There are several different forms of condensed vapor. When you breathe into the air on a cold, frosty morning, your breath forms a little *fog* or cloud. The cold air has made the vapor change to tiny particles of water, so small that you cannot see a single one, though many of them together make a thin mist. You have no doubt seen fogs in valleys, on lakes, or over the ocean. These are always made of tiny drops of water condensed from vapor in the air.

Most *clouds* are also made of tiny fog and mist particles. These, too, are caused by the cooling of the air, sometimes when it moves against mountain slopes (Fig. 71), sometimes when cold winds blow against warm ones, and sometimes when warm air rises high in the heavens and becomes cool (Fig. 72).

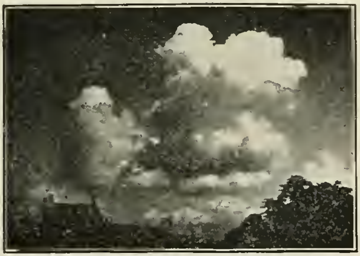

FIG. 72.

A summer cloud, often called a "thunder head," formed by the rising of warm air to such a height that the vapor is condensed.

Another form of condensed vapor is the *raindrop* which falls from the clouds. These drops begin as tiny mist or fog particles, and then, becoming larger and larger, grow so heavy that they can no longer float, and must therefore fall.

We have seen that water may be either a liquid or a gas. There is still another form, the *solid*, which is produced when vapor condenses in a temperature below 32°, or the freezing point. Then *snow* or hail is formed instead of rain (Fig. 73).

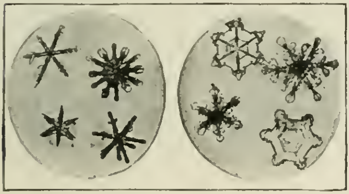

FIG. 73.

Photographs of snowflakes. Some time, when light, feathery snow is falling, notice what beautiful forms it takes.

At night, drops of water often collect on the cold ground, on grass and leaves, somewhat as it does on an ice pitcher or the window pane. This is *dew*, which gathers because the ground cools quickly after the sun sets, so that the warm, vapor-laden air is chilled until the vapor is condensed. If the temperature is below the freezing point, *hoar-frost* is formed instead.

You will notice that raindrops, fog particles, and snowflakes form in the air, while dew gathers on grass and the drops of water on window panes. Really the raindrops and fog particles also gather on solid substances; for there are many tiny, solid particles of dust floating in the air, which you can often see dancing in a beam of sunlight, and it is around these that the rain, fog, and snow form.

It is condensed vapor that forms fog, mist, rain, snow, hail, dew, and hoar-frost.

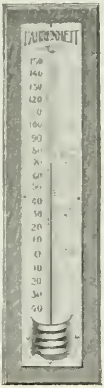

Fig. 74.

A picture of a thermometer, showing the glass tube in which the mercury rises or falls, according to the temperature.

Usually, winds from certain directions, as from the ocean, are liable to bring rain, while others indicate fair weather. By keeping a daily record of the direction of the wind, and of the kind of weather it brings, you will be able to find out for yourself which of your winds cause fair, and which rainy weather. You might also look at the thermometer (Fig. 74) at the same time, and note the temperature. By these means you can learn something about the weather around your home. A record of this kind, which would be called a *weather record*, might be kept somewhat as follows:[1]

Date and Time of Day.	Direction of Wind.	Kind of Weather.	Temp.
Aug. 17, 1901, 8 a.m.	Southeast.	Cloudy.	70°
Aug. 17, 1901, 8 p.m.	Calm.	Gentle Rain.	72°
Aug. 18, 1901, 8 a.m.	West.	Clear.	68°

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[1] If it is practicable, the teacher should at this point introduce an elementary study of weather maps and have the pupils read them each day.

IX. NATURAL PRODUCTS OF THE LAND AND WATER

In whatever part of the country we live, we find that we are indebted to the land or the water for some valuable natural products, and that it requires more or less labor to get these or to make them suitable to our wants.

We call those things *natural products*, which have their origin in the land or water, and which cannot be made by man, although some of them may be improved by cultivation.

These natural products may be classed as: those of the *farm*, such as grain and cattle; those of the *forest*, as timber or lumber; those of the *mine* and *quarry*, as gold, iron, coal, or petroleum and building stone; and those of the *sea*, as fish, the seal, and the whale.

All our wants, as far as regards the necessaries of life, — food, clothing, and the comfort of the body, — are supplied by these products, whether they be in their natural state, or improved by cultivation; and, while our own country furnishes the most of what we require, there are also many things that we use every day which are the natural products of other countries, and which we cannot produce in our country, such as tea, coffee, rice, and sugar.

When our own district produces more of any article than is required for our own wants, we sell what we have over, either by bringing the articles to market (Fig. 74*a*), or by sending them away by steamer or by railway to other places where they are required; and we get in exchange articles produced elsewhere. This is called *trade* or *commerce*, and of this we shall learn more as we go on (p. 101).

In a country so large as the Dominion of Canada, we find that the natural products of one part vary greatly from those of other parts, according to the locality. Those of the sea-coast vary from those of the interior, and those of mountainous regions from those of the plain, or more level land.

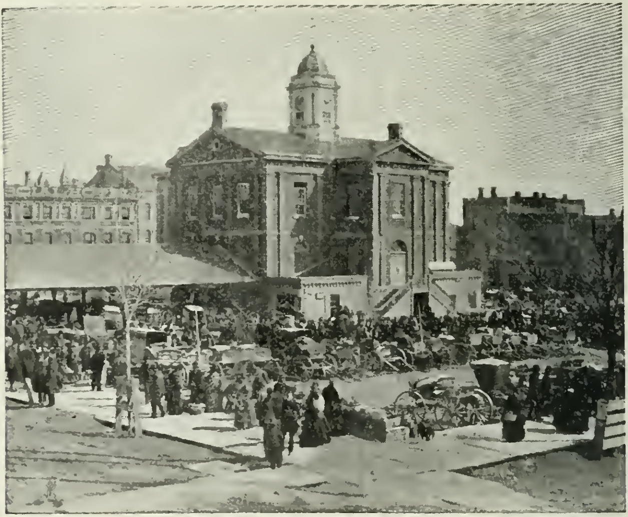


Fig. 74 *a*.

Market-day. A typical market-place, Brantford, Ont.

The natural products of any locality depend greatly on the *climate*, whether it is warm or dry, or bleak and damp and cold; on the *surface of the land*, whether it is mountainous (p. 25), and where the water flows rapidly away, or whether it is level and well watered ; on the *soil* (p. 8), whether it is fertile, or rocky and barren ; on the *drainage* (p. 33), whether it is swampy, or whether the surplus water and the melting snows from the winter flow easily away.

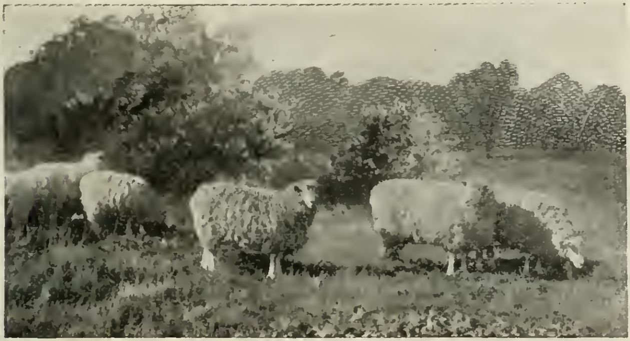


FIG. 75.

Lincoln sheep, from a farm near London, Ont. Noted for their long, soft wool.

Most localities have their special products, for which they are best adapted.

In a farming district, on the rolling lands of the east, or on the level prairies of the north-west, we see the waving fields of grain, or flocks of cattle and sheep (Fig. 75), and we see the farmers driving to town with loads of hay, wheat, oats, potatoes, and other

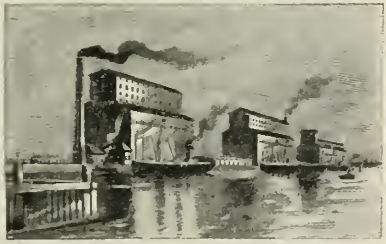


FIG. 76.

Canadian Pacific Railway elevators at Fort William for storing grain to be shipped away.

farm produce. We may also see great elevators and storehouses (Fig. 76) built to receive the grain, and railway cars loaded with grain, cattle, sheep, and hogs, or with butter, cheese, and eggs.

In a grazing country, as on the great prairies of the northwest, we find cattle and sheep (Fig. 83), which are raised not only for the beef and mutton they supply, but also for their hides or skins, which are made into leather, and for the wool from which our warm clothing is made.

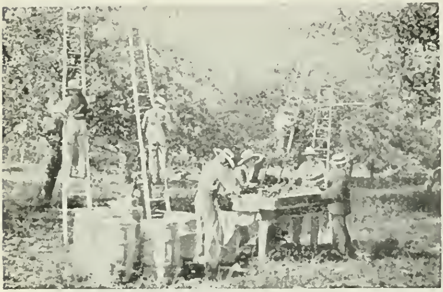


Fig. 77.

Picking apples in the Niagara district in Ontario for shipment to Great Britain.

In a fruit-growing district (Fig. 77) we see great

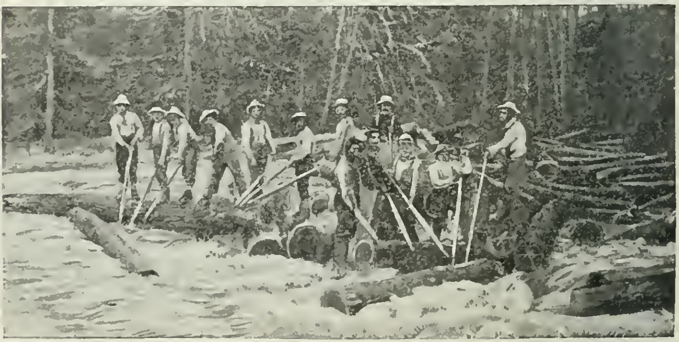


Fig. 78.

Breaking a jam of logs on the Nashwaak River, New Brunswick.

attention paid to the cultivation of grapes, peaches, apples, berries, and other fruits. Gathering, packing, and sending the fruit to market also gives employment to many persons.

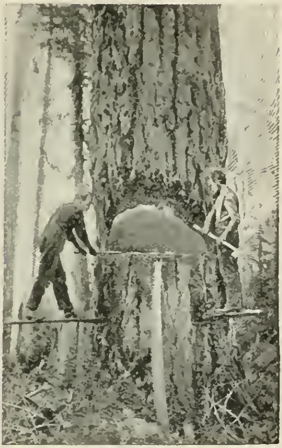


FIG. 79.

Felling big trees near Vancouver, B.C. Note the platform, on which the men stand, so as to be above where the roots begin to spread.

In a lumbering country we see logs cut from the forests and floated down the rivers and lakes in such immense quantities that they often jam together and block the passage of the rivers (Fig. 78). These logs at length reach the saw-mills to be cut into lumber. We see huge trees chopped down with great labor (Fig. 79) and floated down the rivers and lakes to a seaport, there to be loaded on ships and sent abroad, or made into masts for ships, or cut into square timber for buildings; besides trees cut down for telegraph poles and many other purposes.

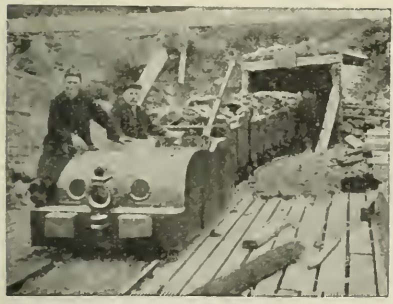


FIG. 80.

Trip of mine cars, drawn by an electric motor, Crow's Nest Colliery, British Columbia.

In the mining districts we see coal, or iron and other ores dug out of the mines and brought to the surface of the ground (Figs. 23

and 80): or we find many men patiently digging out the soil and washing it carefully to secure the gold it contains.

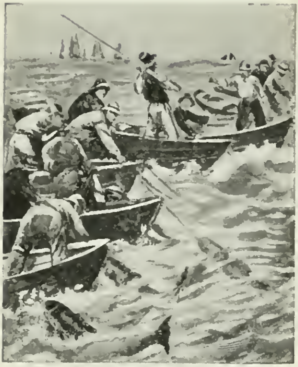


FIG. 81.
Cod-fishing on the Banks of Newfoundland.

On the sea-coast, out on the ocean (Fig. 81), on the great lakes, and on the rivers flowing into the sea, we find the fishermen gathering and bringing in great loads of fish in their boats, and we find also large storehouses for receiving the fish (Fig. 82), and factories for canning or preparing them for market.

These are the main natural products of our country, and it is upon these that we are all more or less dependent for our living.

The natural products of a country form the foundation of the wealth and prosperity of the people, because they afford employment to so many persons, not only directly in cultivating or procuring them, but also in their transportation and in the various industries connected with them. They not only supply our own wants, but help to supply the

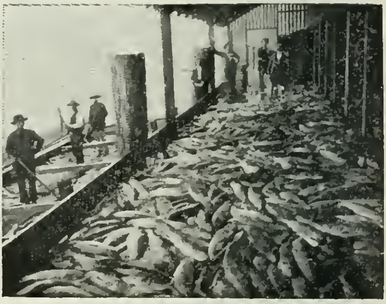


FIG. 82.
Unloading salmon on the Fraser River, British Columbia.

wants of people in other countries, who in return send us their products, which are very different from ours, and which we cannot produce in our own country.

What articles are produced in your locality in greater abundance than they can be used at home? Where is the surplus sent to?

The timber of our forests, besides giving employment to the lumbermen, supplies our sawmills, gives employment to carpenters in building houses, to the cabinet-maker in making furniture, to the waggon-maker, railway car-builder, ship-builder, agricultural implement maker, and many others. Can you name any other trades which require to use wood? How many industries can you name which use iron, from the making of a tack or nail up to the great iron buildings and bridges, the rails of the railway, or the huge locomotive that draws the train? How many industries are dependent on our cattle and sheep? On our fisheries? On our mines? To how many uses are our coal and iron put? What industries connected with our natural products are there in your neighborhood?

X. OUR DOMESTIC ANIMALS

Every one is familiar with the horse, the ox, the cow, the sheep, the pig, the goat, the dog and cat, the poultry; and it ought not to be difficult to state the use each of these is to us.

These were all originally wild animals, and even now are to be found in their wild state in various parts of the world. They have, however, been tamed by man, and gradually brought to their present state of perfection and usefulness by careful attention to their training and breeding; and thus we call them our *domesticated animals*.

A very natural question is, "Do the people in other countries have the same kind of domestic animals that we have?" The answer to this question forms part of the knowledge that we gain by the study of geography. We shall see that while these animals are found in every part of our country, some are more successfully raised in one part than in another, chiefly because the climate and the products of the soil are better adapted for that purpose. Many of them, too, are to be found in other parts of the world much more abundantly even than in this country.

While cattle, sheep, and horses are raised by most farmers, yet the great cattle *ranches*, or pasture grounds, are on the level grassy plains in the northwest (Fig. 83). Similar ranches are found in the United States, in South America, and in Australia.

Sheep are raised in this country, but far more abundantly in Australia and South Africa.

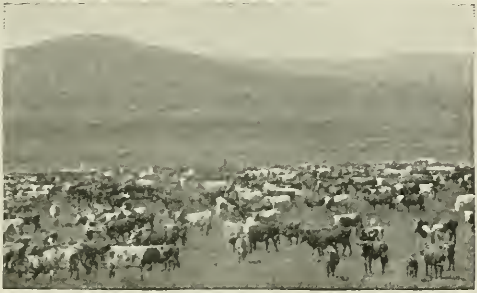


Fig. 83.
View of a cattle ranch in Alberta, N.W.T.

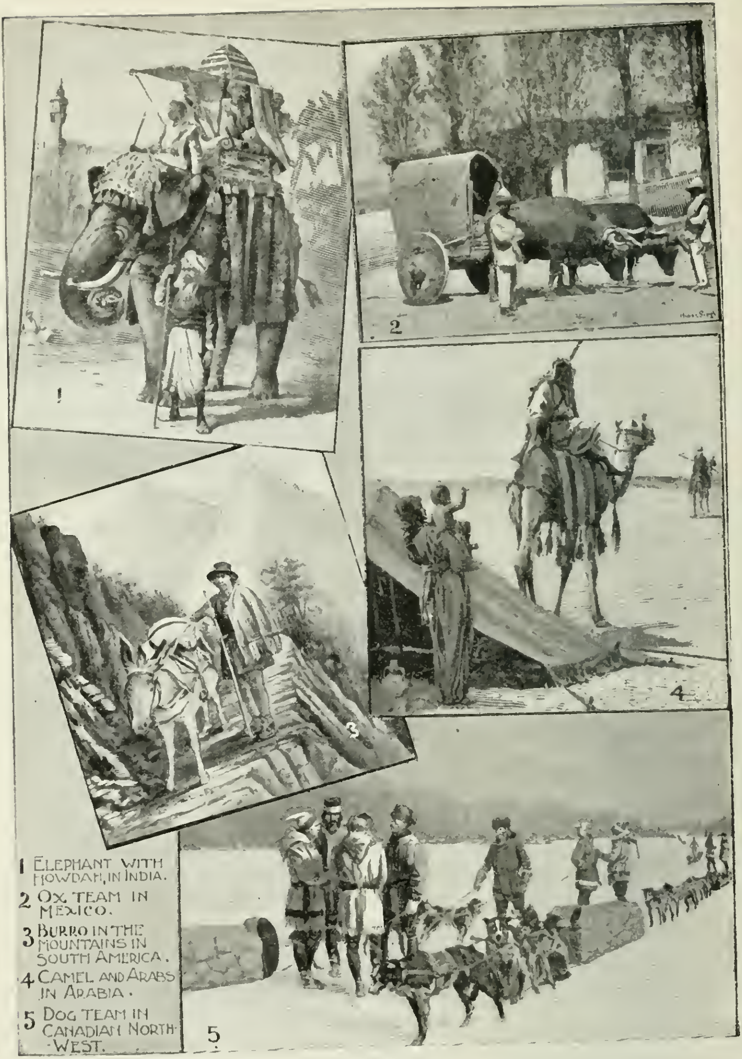
We use the horse for riding and driving, for work on the farm or for teaming in the cities; and oxen for dragging loads over rough roads, as in lumbering, or in ploughing over rough fields.

In other countries we find the ox very generally used by farmers, in Mexico (Fig 84), India, Africa, and elsewhere; while the horse is used chiefly for riding.

For carrying loads over rough roads or through mountainous districts, instead of the horse we find the mule or the burro (ass) used in Central and South America (Fig. 84); and the llama and the alpaca, often called the American camel, in South America. Across the sandy deserts of Asia and Africa camels carry the loads (Figs. 69 and 84), because they can travel for days together with little or no water, whereas other animals would die of thirst.

Dog teams draw the loads on sleds over the snow in the northwest (Fig. 84). They and the reindeer (in Europe) are the only beasts of burden in the far north.

In Asia, the elephant becomes the great helper of man, carrying passengers on his back in what is called a how-


1
2
3
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5
1 ELEPHANT WITH HOWDAH, IN INDIA.
2 OX TEAM IN MEXICO.
3 BURRO IN THE MOUNTAINS IN SOUTH AMERICA.
4 CAMEL AND ARABS IN ARABIA.
5 DOG TEAM IN CANADIAN NORTH-WEST.

FIG. 84.

dah (Fig. 84). He is also used for lifting and hauling heavy loads, and for hunting through the thick, tangled jungles of the southern part of that continent.

So we see that each country or part of the world uses those animals which are best suited to the country, and can therefore do the work that is required there in the best

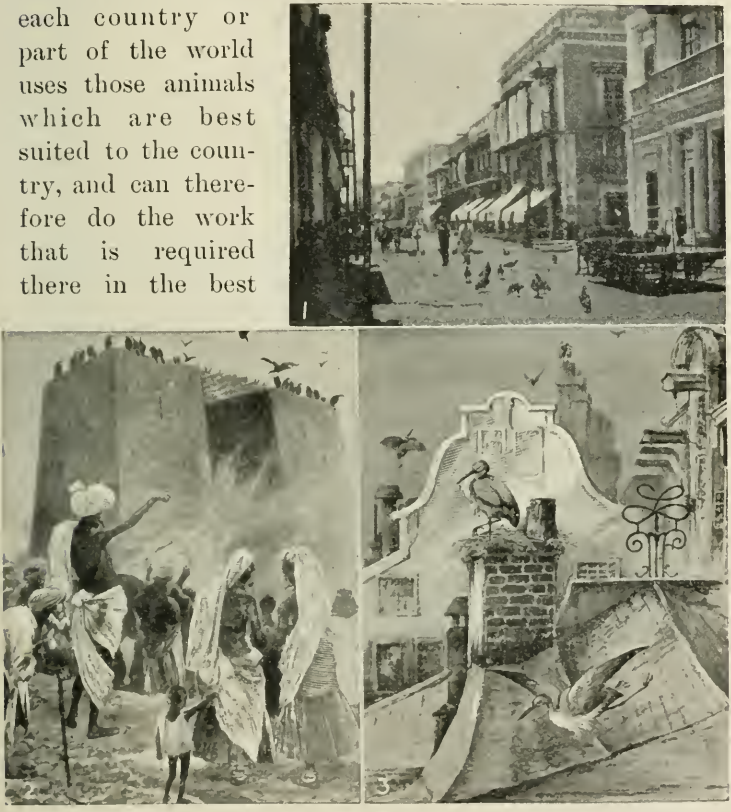


Fig. 85.

1. Buzzards in a street of Vera Cruz, in Mexico. 2. A Parsee funeral procession to the Tower of Silence, at Bombay, in India. The vultures live on the bodies of the dead, which are exposed there, instead of being buried. 3. Storks on the housetops of Amsterdam, in Holland.

manner. The horse on the plains, the ox on the rough ground, the mule or ass in the mountains, the camel in the desert, and the elephant in the jungle.

Besides these domestic animals there is a great variety of wild beasts, of which we shall learn later on. Some of these, half-tamed, are protected by law, and have become the scavengers of old cities, which are not kept as clean as those in our country; such are the stork, the hyena, the jackal, the vulture, and the buzzard (Fig. 86).

XI. PEOPLE

Do you ever think, when you see a colored man, that there are lands where all the people are *black?* And yet there are parts of the world through which you might travel a long distance, where no white man has ever been seen.

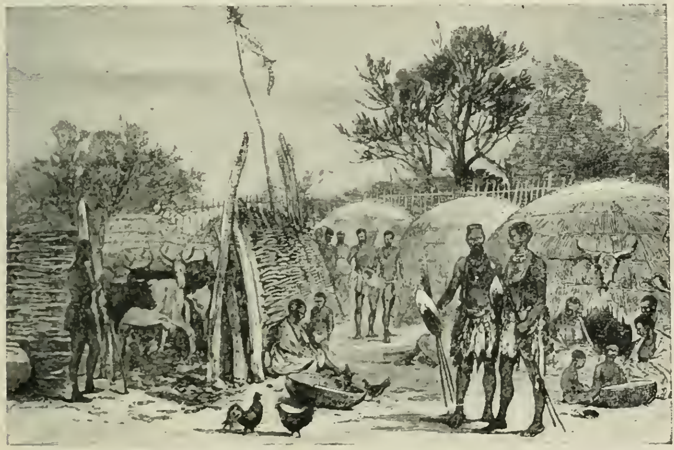


FIG. 86.

Interior of a kraal, or Zulu village, on the Tugela River, in Africa.

All the people are negroes (or *blacks*), and that part of the world which is their native land is the great continent called Africa.

In what is really the home of the black people, it is very hot all the year round. The land requires very little labor to cultivate it, and many fruits and roots grow wild. Therefore, the people require few clothes, and do not have to exert themselves to till the ground or to build very substantial houses.

In their own country, the negroes, instead of living under a government such as we have, were, and indeed are now, gathered together in small tribes, living in huts made of plaited grass or rushes (Fig. 86), and sometimes surrounded by a fence of posts (or *stockade*, as it is called) stuck into the ground close together. These tribes often quarrelled and fought with each other, and, when they made prisoners, sold them as slaves to a fierce race of men called Arabs, who treated them most cruelly, and drove them naked, in gangs (Fig. 87), to a seaport, from which they were sent away in horrible slaveships to other

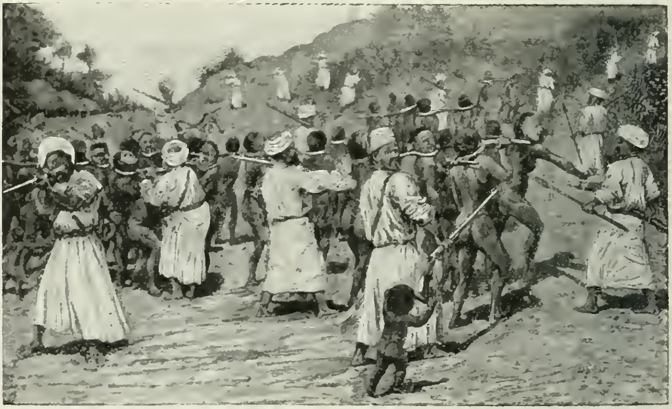


FIG. 87.

A slave raid in Central Africa. Notice the heavy wooden yokes on the men's necks, and the poor little children running after their mothers.

countries to labor, and to be bought and sold like cattle. Many negroes in this country escaped originally years ago from our neighboring country, the United States, when negro slavery was allowed there, or are descendants of those escaped slaves, who, as soon as they reached Canada, became free. It was not until a great war took place in the United States, about forty years ago, that the negroes there became free and were allowed to work for themselves.

Most boys and girls, or at least those who live in a city, have seen the Chinaman who keeps a laundry. You will generally see him with his hair plaited into a queue at the back of his head, wearing a blouse and strange-looking thick-soled shoes. You can easily see that he is not a

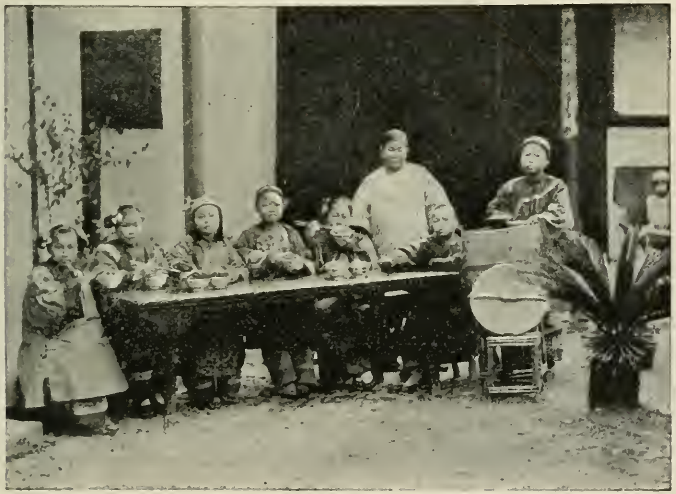


Fig. 88.

Chinese children eating rice with chopsticks. These chopsticks are like wooden knitting-needles.

native of this country. He does not speak our language. The color of his skin is different from ours. He has no family, no wife, no children. Why is this? And where does he come from? You will want to learn all about him, and where he has left his family: about the land where there are little Chinese children (Fig. 88) with their mothers. You will want to learn what the Chinamen do in their own country, what they grow in their fields, and what sort of houses they live in; their big cities and their temples and palaces; their queer-looking ships, and many other strange things.

You will find that theirs is a great country, with more people in it than in any other country in the world. From their country comes much of our tea and silk.

The Chinese are generally called the *yellow* race.

Another race of people is familiar to most of us in this country. This is the Indian, or *red* man.

Our continent was the original home of the red man, or Indian, and long before the white man discovered America, the whole of this great continent was inhabited, although very thinly, by the people of this race.

They are called Indians, because the first discoverers of America, when they reached the shore of this continent, thought that they had travelled so far round the world that they had come to a part of India, a

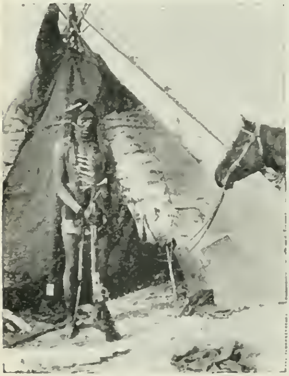


FIG. 89.

A Blackfoot Indian, and tepee, in the northwest, near the Rocky Mountains.

great country on the continent of Asia. They did not know that they had many thousands of miles to travel before they could reach that land. The name has, however, been retained, as meaning the original inhabitants of America.

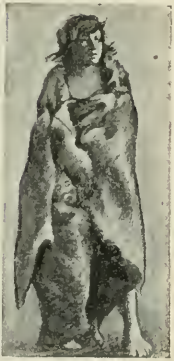


FIG. 90.
Patagonian in the far south of South America, more than 6000 miles south of Canada.

The whole of our own country belonged originally to the Indians, and some of the fiercest and most savage tribes of them all inhabited Canada and the country adjoining, now the United States. These people were often unjustly treated by the white men, and with their natural ferocity inflamed by a desire for revenge, they carried on a frightful and barbarous war against the invaders of their country, cruelly murdering and torturing every one they could lay hold of. The story of the sufferings and privations of the early pioneers and discoverers, who travelled over a great part of the country, forms a most interesting account of daring exploits, patient endurance, and thrilling adventures. These early travels were made chiefly in birch-bark canoes on the lakes and rivers, or on foot through the wild woods and across the broad prairies; and the travellers suffered many hardships and perils in their passage through the unknown country, in addition to the dangers from the hostile Indians.

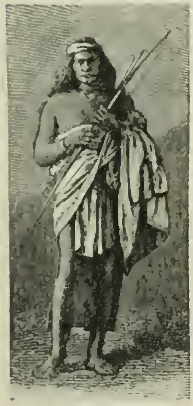


FIG. 91.
Apache Indian in Mexico, near the centre of the great continent of America.

The Indians were continually at war with each other, like all the nations of olden times, and, like the blacks of Africa, were divided into many tribes. The wars became more fierce and bitter when the whites came among them, so that the tribes became much reduced in numbers, until now only a few Indian villages and settlements are to be found scattered over this country, and it is only in the mountains of the far west and north that the Indian is to be found in his ancient uncivilized state.

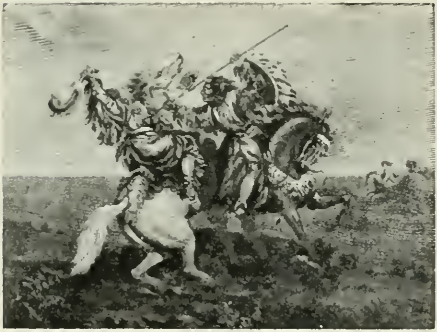


Fig. 92.

Fight between a Cree and a Blackfoot Indian in the northwest, not eighty years ago.

From a painting by Paul Kane. By permission of the Hon. Geo. W. Allan.

Until a few years ago the Indians in the far west carried on their wars with one another (Fig. 92), but now, except in some parts where they still hunt the deer and wild animals for the furs, they have settled down into villages and on lands called

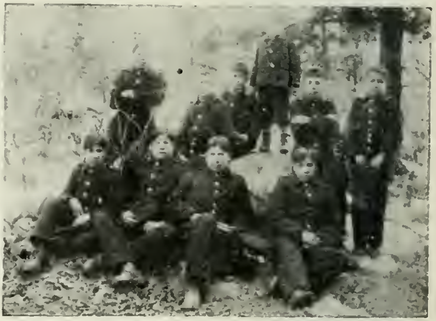


Fig. 93.

Group of Algoma Indians, pupils at the Shingwauk Home, Sault Ste. Marie.

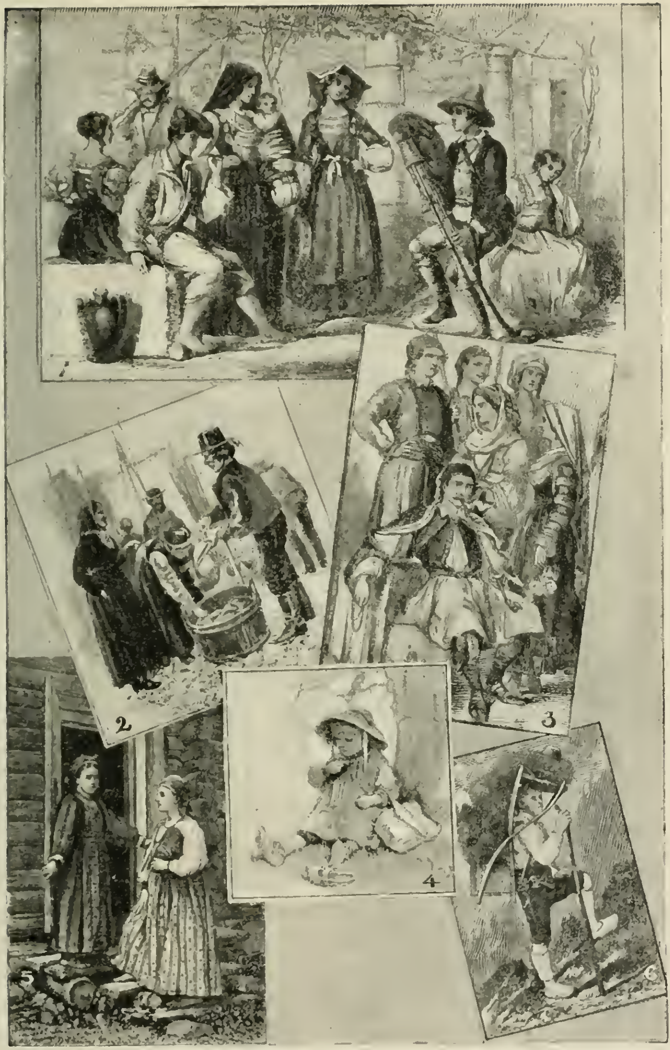


Fig. 94.

1. Group of Italian peasants. 2. Norwegian fish market. 3. Greek in typical costume. 4. French peasant child — note the little wooden shoes. 5. Russian peasant girls. 6. Swiss mountaineer

"reservations." These are specially reserved for the Indians, and there they cultivate a little land and live a lazy, peaceful life, assisted by a pension from the Government. There, also, are to be found schools, established by the Government, for the Indian children, where they are taught useful occupations as well as the simple school lessons.

In Figure 93 we see a group of these young Indian students, who for intelligence and brightness of expression would do credit to any of our schools. And we must never forget our duty by them, inasmuch as by our having taken possession of the lands of their forefathers, they have become the wards of our country, and our country must, therefore, be their guardian.

We have now seen that besides our own race, the white people, there are black, yellow, and red people. These are called the four great divisions of the people of the world.

You will learn farther on how all the white people also are divided into nations or tribes. You have seen Frenchmen or Germans or natives of other countries, who speak other languages than English, and as you proceed with your lessons you will find how the white race is divided into many different peoples (Fig. 94), speaking many different languages, not one of which can understand the language of the other, and yet all belonging to the "white" race.

In the illustration (Fig. 94) we see some of the people belonging to the white race in Europe, but there are also many other branches of the same race in Asia and Africa as well.

It is the same with the other races. They are divided into many nations or tribes, speaking languages altogether different from those of the white people.

As it is with the languages, so it is with the dress, the food, the manners and customs, the occupations and the modes of living. Each country has its own peculiarities which vary from those of the others, and if you were to travel round the world you would find much to see and wonder at, and you would realize how much there is to be learnt and studied in this great world.

XII. INDUSTRY AND COMMERCE

EVERY man is expected to engage in some kind of work or *industry* in order to earn a living. As we have already learnt, many are engaged in securing or cultivating the natural products of the land or of the water, according to the locality in which they live. Others again, instead of working to cultivate or gather these natural products, are engaged in manufacturing useful articles such as clothes, cotton goods or woollen cloth, machinery, and materials for building or furnishing houses. Are there any of these in your neighborhood? If so, what do they make? You can at least find a blacksmith's shop, or a tin-shop, or a house that is being built. Notice how many different materials are being used by the workmen. Can you find out how many of these materials are made from the natural products of our own country?

Storekeepers do neither of these two kinds of work; they neither produce nor manufacture. What, then, do they do? Notice how many articles are kept by the grocer, the dry goods merchant, and others whose stores you visit. Where do they get them all?

We know, or can learn, what are the natural products of our own part of the country, and also what articles are manufactured in our neighborhood; but we have to find out where other articles come from and how they reach us; whether they are the products of other parts of our own country, or whether they come from abroad, that is, from

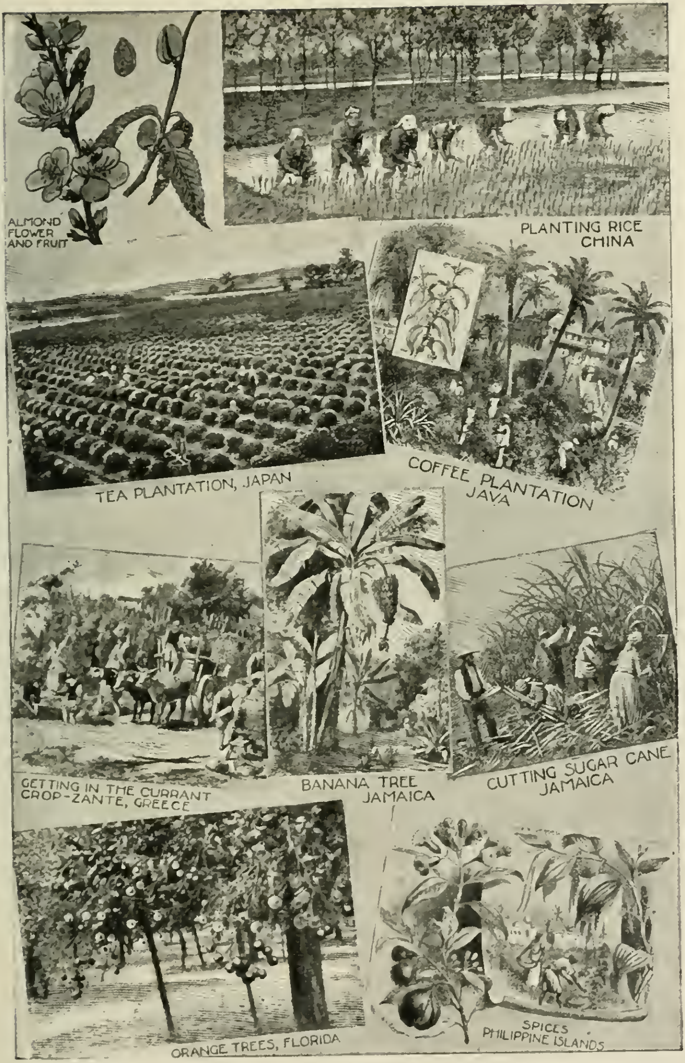

ALMOND FLOWER AND FRUIT
PLANTING RICE CHINA
TEA PLANTATION, JAPAN
COFFEE PLANTATION JAVA
GETTING IN THE CURRANT CROP-ZANTE, GREECE
BANANA TREE JAMAICA
CUTTING SUGAR CANE JAMAICA
ORANGE TREES, FLORIDA
SPICES PHILIPPINE ISLANDS

FIG. 95.

other countries. At the same time that we learn this, we have to find out where the surplus of our products goes, and what we get elsewhere in exchange for them (p. 78). To do this we must know not only about the various parts of our own country but about the other countries of the world as well.

Just as the products of one part of our country vary from those of another part, so the products of different parts of the world vary, and in each case the reason for the difference is to be found, chiefly, in the climate, in the soil, or in the locality, as in our own country (p. 78).

When we come to table we find that although our country produces the most of what we eat — the meat, fish, fowl, vegetables, and fruits — yet, there are the tea, the coffee, and cocoa; the sugar, the pepper, the rice, and spices; the oranges and bananas; the currants and raisins in our cake; the almonds and peanuts — where do they come from (Fig. 95)? And how do they get here?

In the same way with our clothing, our furniture, our houses. While we can produce our own wool, and it can be woven into cloth in our own country; yet we must go elsewhere for our cotton and silk, and we are dependent on other countries for such articles as our tinware, plates, dishes, and cutlery. Even for the brick and stone and lumber in our houses; for the canned fish, fruit, and vegetables we buy at the store; for the manufactured farm implements, furniture, and clothing, we must go to certain localities in our own country.

But, on the other hand, some countries contain so many people that there is not land enough to produce sufficient food for them, and consequently the extra supply necessary must be brought from where it is more plentiful, and where there is more than is wanted for home use. Our own mother country (Great Britain) is an example of this, and the people there would be in danger of starving if it were not for the food supplies sent from Canada and other countries.

One country is dependent on another for many things, and each part of any country is dependent on other parts for many things.

This exchange of commodities or articles, whether manufactured or in their natural state, is called *trade* or *commerce; internal*, if carried on between different parts of the same country; or *foreign*, if carried on with other countries. By this system of commerce, the people of each country are enabled to enjoy the comforts and luxuries of the natural products, or of the manufactures of every part of the world.

The storekeeper is the one who gathers together the various commodities which we require, whether from the producer, the manufacturer, or the importer (the merchant who brings foreign commodities into our country). There are also many persons employed in gathering together our natural products, which are manufactured into articles for our own use, or are exported, that is, sent abroad to other countries to supply their wants.

At the present time it is easy, where most of us live, to buy almost everything, and to find men who can do almost any kind of work. We are so accustomed to all this that we are apt to forget that it has not always been so.

Not much more than a hundred years ago there were no stores in this country and not many houses except in a few seaport towns, or in the neighborhood of some of the old forts which had originally been built for protection against the Indians; only here and there a trading-post had been built of logs, surrounded by a stockade, by the adventurous fur traders.

Each family, as it settled in the country, was obliged to find its own food, make its own clothing, and build its own house. These early settlers, or *pioneers*, as they are sometimes called, did not dare, at first, to venture far from the protecting forts, but when the Indians became more peaceable, they gradually pushed their way into what was literally a wilderness.

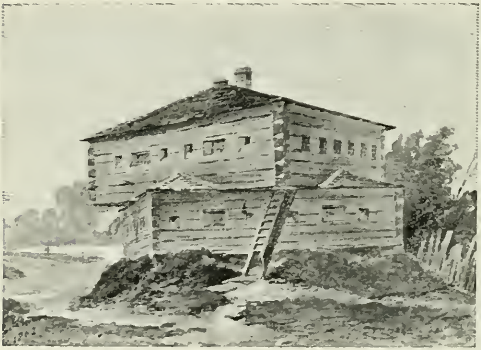


FIG. 96.

An old block-house, built at Toronto, Ont., many years ago, as a fort for the protection of the early settlers.

Let us study more fully how people lived in those days, and how changes have gradually been made until the present manner of living has been reached.

The whole of this country, as well as the whole of the great continent of America, belonged originally to the Indians (p. 92), who were the only inhabitants until adventurous sailors of various nations came from Europe across the Atlantic Ocean, and by force gradually took possession of the land.

The first persons who arrived here naturally settled along the coast and near the seaports, because these were the first places reached.

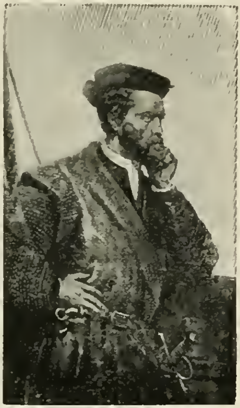


FIG. 97.

A portrait of Jacques Cartier.

From an original painting by F. Riss, in the Town Hall of St Malo, France

In Canada the first European people to make a settlement were Frenchmen, who sailed from France under the leadership of Jacques Cartier (Fig. 97) not quite four hundred years ago, and took possession of the land in the name of the King of France. The native Indians, although friendly at first, became bitterly opposed to the invasion of their country by the white men. As a protection against the Indians large tracts of land were granted to certain men called seigneurs (*sain-yor*) or lords who built fortified houses upon their property. These became places of refuge for the surrounding settlers, trying to cultivate the land, if at any time they were attacked by the ferocious, hostile tribes of Indians of those days.

The British and other European nations had also made settlements in other parts of America, and for a long time there was bitter warfare between the French and British.

Finally, Great Britain, after many years of fighting, gained possession of Canada, and the wars with the Indians gradually ceased. It then became possible for settlers to take up their homes farther in the country, and for the traders to carry their goods into the far west to exchange for furs.

Only a few years, however, after France had given up

Canada to Great Britain, and only a little more than a hundred years ago, the majority of the British settlers who had made their homes south and east of the Great Lakes, declared their independence of the mother country. They wished no longer to remain a part of the British Empire, but to form themselves into a separate country and govern themselves. There were some among them, however, who remained faithful to Britain, and these were forced to seek refuge in Canada. Here they were welcomed, and were given large tracts of land for settlement. These United Empire Loyalists, as they were called, formed a large proportion of the early settlers of all the eastern part of the present Dominion of Canada, as most of them took up the grants of land that were made to them and began to clear up what was then a wilderness.

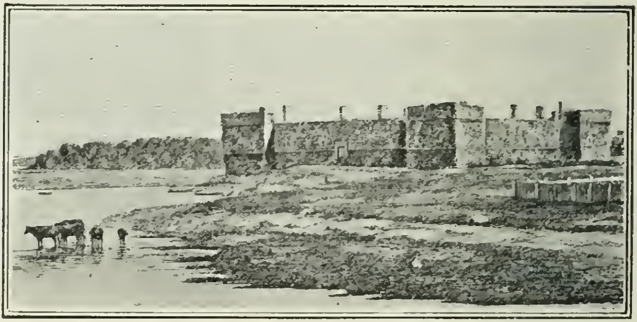


FIG. 98.

Old French fort at Chambly, in the Province of Quebec.

In this manner most of the eastern part of the country has been settled either by the United Empire Loyalist families, or by the large number of immigrants who have come from the Old World, as Europe is called, to make their home in the New World.

Often several families settled together, miles away from other people. Sometimes a single family would be alone, and make a home ten or twenty miles from the nearest neighbor.

Of course when a man started out he took some articles with him, as a gun, with powder and bullets, some clothing and some blankets, but upon arriving at his new home he was obliged, like Robinson Crusoe, to rely upon himself.

Many descriptions have been given of the hardships endured by these early settlers. Trees had to be cut down in order to make room for a house, which was built of logs with mud to fill up the spaces between them. It had no floor except the earth, and only one room, with a loft for sleeping in, up to which one had to climb by means of pegs fastened in the logs. The beds were made of posts driven into the ground, with cross pieces between ; the chairs were three-legged stools, and the table was a part of a log supported on four legs ; coats and trousers were made of deer-skin ; a few sheep were raised and flax grown for home-spun clothing.; and when the children were not barefooted, they probably used moccasins for shoes.

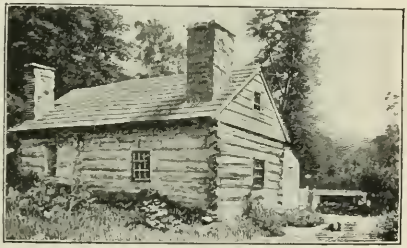


FIG. 99.

A log house, such as the pioneers used to build in the forests.

Usually the early settlers grew their corn and wheat for bread, and when they were unable to get to the mill, which might be a long way off, they would crush the grain as best they could on the *hominy block* (Fig. 100). Their tea was often made from roots and leaves of plants found in the forest, and meat was obtained by shooting wild game.

Almost everything that the family used was grown or made by the father or mother, so that they had to do many kinds of work. If a boy wanted a new suit of clothes, his mother would make the cloth, cut it, and sew it; or if he needed a pair of shoes, his father would be his own tanner and shoemaker.

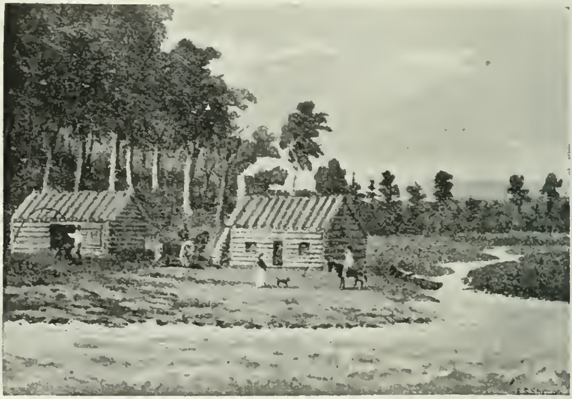


FIG. 100.

An early settler's home. Notice the man in front of the barn on the left, pounding corn on the *hominy block* or hollowed-out top of a stump.

From "Upper Canada Sketches," by permission of Thomas Conant, Esq.

As a rule each man raised more of some things than his own family could use, as for example, wheat, wool, or hogs;

or he made potash from the ashes of trees burnt down in clearing the land; but there were other things that he had to buy, such as tea, powder, and salt.

It was the custom, therefore, to drive or to go by boat if possible, two or three times a year to the nearest town, perhaps a hundred miles away, taking the products of the farm and exchanging them for necessary articles.

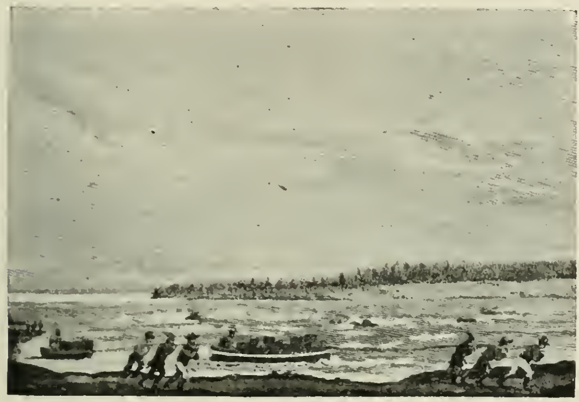


Fig. 101.

Hauling the bateaux laden with supplies up the rapids on the St. Lawrence River.

From "Upper Canada Sketches," by permission of Thomas Conant, Esq.

These trips had to be few, as the roads were rough, muddy, and dangerous, and were more often undertaken in winter, when the snow made the roads passable for sleighing. It might require two weeks to haul a load of grain to town and bring back the things the family wanted. In some parts of the country, where there are few settlers and no railways, people are still living in this manner, and supplies are carried in large boats, or bateaux as they are called, along the rivers and through the lakes which are so numerous all over the country.

But one family did not usually live long alone, for soon others came and settled near them. Perhaps several built their houses near together, forming a little village.

Now that there were more people, the kind of work that each did began to change. Perhaps one of them built a saw-mill (Fig. 102) and sawed lumber for the others when they needed it. Another spent part of his time at carpentry or blacksmith work for his neighbors. A third built a grist-mill and occasionally ground grain into flour. A fourth made shoes or clothes a part of his time, or he doctored the sick, or preached, or taught school.

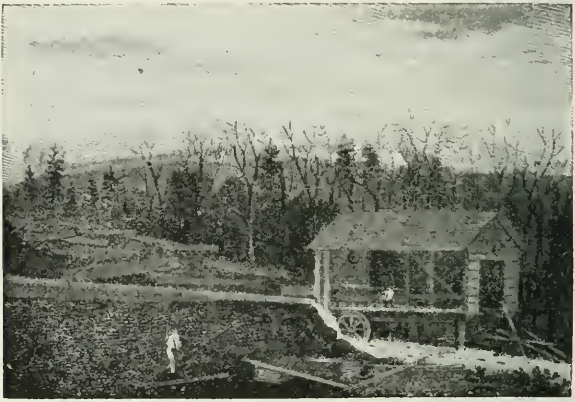


FIG. 102.

A saw-mill belonging to an early settler near Whitby, Ont., a hundred years ago.

From "Upper Canada Sketches," by permission of Thomas Conant, Esq

Perhaps the blacksmith spent all his time in his shop, shoeing horses, making ploughs, or other work, and the others worked at their own trades. Then the storekeeper was wanted, who did nothing but buy and sell goods. He went to the city and bought the supplies that he thought his neighbors would need, such as groceries, dry-goods, hardware, boots and shoes, and drugs, and these he kept in his store for sale.

It was not then necessary for the farmer to go to the distant town, because he could usually find what he wanted at the village store. If he raised more potatoes than he needed he could take them to the storekeeper, or country merchant as he is called, and get groceries or other things in exchange. In the early times of the country most of this trading was done by the truck or barter system, as very little money was in circulation. A farmer would sell a load of grain or other produce to the country merchant, and in order to pay the blacksmith who had shod his horses, or his doctor, or the school-teacher, he would give an order on the storekeeper to supply goods for the amount due. Nowadays this is not necessary, as money is more plentiful, and a man can buy and sell where he pleases.

Each year more people took up land, until a great part of the country became carefully cultivated, and towns and cities grew up. Then they began to live in the manner that is now so common. That is, each man now confines himself to one or a very few kinds of work, and depends upon other men for the other things he needs. Those who live in the country are chiefly farmers, and raise the food that we eat. Others are busy at work connected with various natural products of the land and water (p. 79).

Many, instead of cultivating these natural products, are engaged in mills and factories. One saws logs into lumber, or makes doors or such-like articles; another prepares wood pulp for manufacturing paper (Fig. 103); one manufactures cloth; another stoves; another shoes: while some follow the industries of tailoring, tanning hides, printing newspapers, etc.

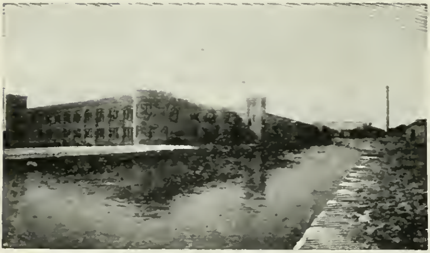


Fig. 103.

Wood-pulp mill at Sault Ste. Marie, where spruce and other woods are ground into pulp and prepared to be made into paper.

Still others are engaged in a third kind of work. They do nothing but buy and sell articles, and among them are all the merchants that we see in the stores.

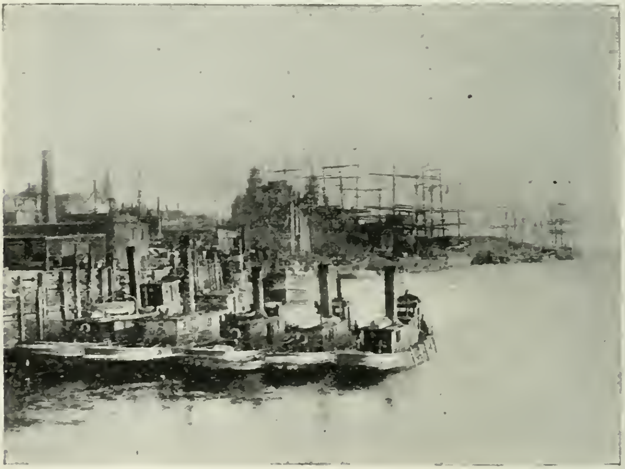


Fig. 104.

Harbor of St. John, N. B., from which much lumber is shipped away. Notice the tow-boats ready to tow vessels against the swift currents caused by the tide.

Under these conditions the work that one man does is not only of one kind, but it may be of a very simple kind. For example, a man may do nothing but drive a team, or he may make shingles, or drive nails, or tie up sacks of flour, or put in the heads of barrels. How different this is from the work of the pioneers!

As a rule, each town or city is specially interested in one or a few kinds of industries. For example, a town that is favorably situated at the outlet of a wooded district, will probably have an important lumbering industry. One in the midst of mountains may make mining its especial work, or another, near great wheat fields, may have important flour mills. A town with a harbor on the sea-coast (Fig. 104), or at the head of navigation (Fig. 111) on the rivers or lakes, is interested in shipping. The abundance of cheap water power to drive machinery also attracts many manufactures to its neighborhood (Fig. 105).

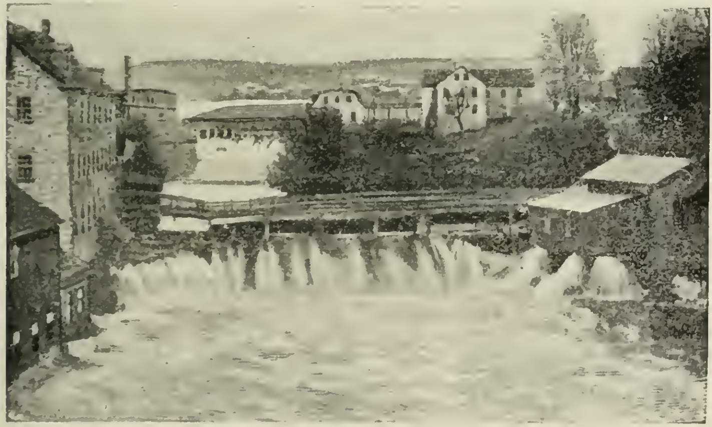


Fig. 105.

View of Sherbrooke, Que., showing the water power on the Magog River.

Thus each town, like each man, is apt to be interested in the production of few things; what they grow or manufacture is sent away in all directions, and the other articles that the people want are brought to them from the many places in which they are produced.

Find out what are the principal industries in your own town, and where their products are sent. Name also some of the substances that are brought to it and where from.

When people are so dependent upon others for most of the materials they use, it is clear that roadways become of great importance. For if wheat for flour be grown in the northwest, and shoes and nails be made in the eastern provinces, and if the thousand other things that we must have are produced in a thousand other places, what good will they do us, if they cannot be brought to us?

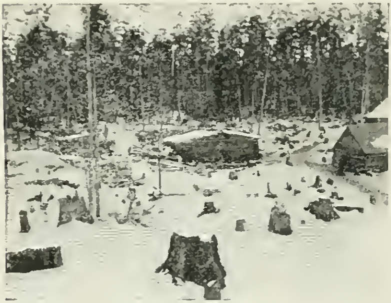


FIG. 106.

A winter road to a clearing in the bush.

The pioneers had no roads at first, and one of the hardest pieces of work they had to do was to cut ways through the dense forest. For this reason most of the early settlers chose their lands on the shore of a lake or bay, or on the bank of a river. In summer the water formed a good natural road for their boats, and in winter when frozen over it formed a smooth, level road for their sleighs. The winter snow makes the great highway now for the dog-teams and sledges of the northwest (Fig. 84), as well as for farmers and lumbermen throughout the whole country.

In the lumbering districts the snow-road, even now, is a necessity, as, when the snowfall is light, it is almost impossible to haul the logs to the banks of the streams ready to be floated down with the spring thaw.

In the mountainous districts, where there are no roads, as on the way to the Klondike gold fields, it is necessary to follow a *trail* or narrow path; and, instead of using a waggon, to carry goods strapped on one's back or else upon horses or mules (Fig. 107).

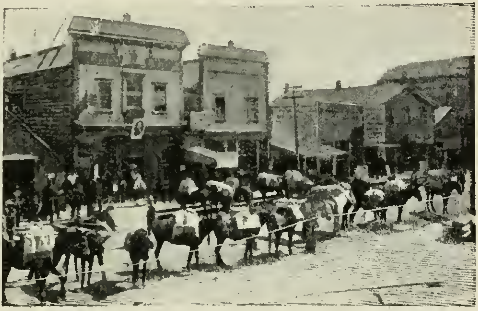


FIG. 107.

A pack train at Dawson, Yukon Territory, which has come over the passes of the Rocky Mountains.

A great deal of labor has to be spent in making good roads. Not only must trees be cut down and stumps and stones be removed, but steep places must often be levelled. Bridges are also necessary, and much work must be done to keep the roads in repair. In the more settled parts of the country great sums are spent in making good roads, as it is found to be better to spend money in this way, than for the wear and tear of conveyances, injury to horses, and the great loss of time so often caused by bad roads. The Government, also, spends large amounts every year in building roads into new districts for the purpose of opening them up to settlers.

In cities, instead of the mud or gravel or plank roads of the country, the streets must be paved because there is so much traffic over them. A bed of broken stone is made and rolled level, or blocks of stone are laid down side by side; and in many cities asphalt pavements are common. What kind of streets have you seen, and how were they made?

We have already considered the importance of rivers and lakes (p. 48) as roadways, both in summer and winter. Not much more than sixty years ago there were no railways in Canada, and people depended upon steamboats or sailing vessels or bateaux for their supplies from the sea-board, and the arrival of the last boat of the season at the close of navigation was a very exciting time.

While navigation was not obstructed on the lakes, except by storms, it was often very difficult on the rivers on account of the rapids and waterfalls. To pass these it was necessary to unload the boats and carry the goods past the rapids, and then haul the boat laboriously up the rapids (Fig. 101) or run it on rollers over the land.

To overcome these rapids and waterfalls, canals have been built by which great vessels may pass easily round them, being lifted or lowered,

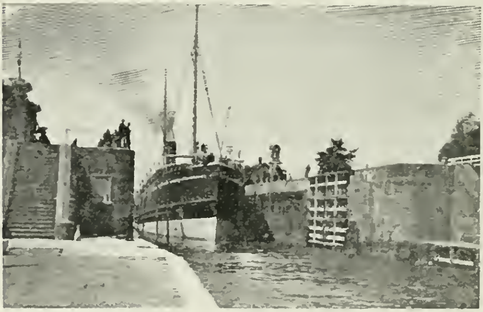


Fig. 108.

The steamship "Athabasca" coming out of the lock on the Sault Ste. Marie Canal.

in what are called "locks," according as they are bound up or down the river (Fig. 108).

But railways are, in many respects, the best roads. Even with the finest of waggon roads, goods cannot be carried more than twenty to forty miles a day, and it was considered fast travelling when the old stage-coach (Fig. 109) with its four or six horses could make ten miles an hour. Boats are somewhat faster, but railway trains will travel forty miles in an hour, and they take both passengers and freight much more cheaply than they can be carried by waggon or cart.

FIG. 109.
A stage-coach, sixty years ago, before the railways were built.

As we ourselves travel on passenger trains, we are inclined to think that the chief business of railways is to carry people; but this is not generally the case. Their main business is to carry freight, such as grain, cattle, groceries, and machinery; and by doing this they have had a great influence upon the development of the country.

For example, a few years ago it would have done little good to raise cattle and wheat in the far west, because they could not be sent to the great cities to be sold; but,

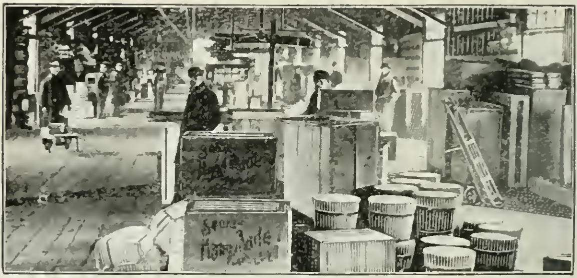


FIG. 110.

A view of the interior of a large freight depot.

as soon as railways were built, these industries and many others became of great importance. There is now, therefore, much more buying, selling, and carrying — that is,

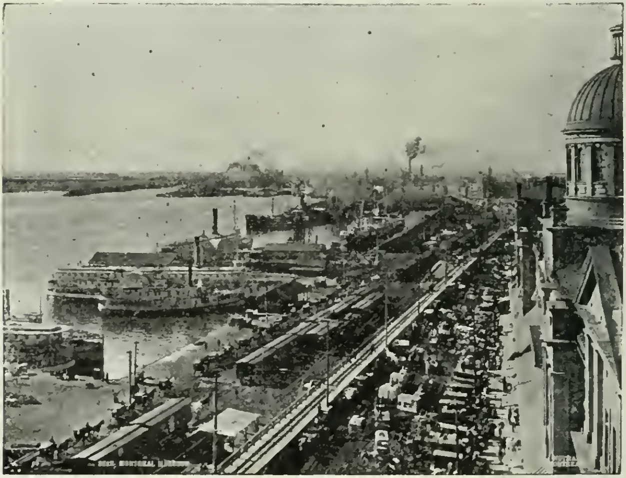


FIG. 111.

A busy day at Montreal. The building on the right is Bonsecours Market. Note the busy street, the railway, the river, and ocean steamships.

much more *Commerce* — than before the railways were built.

Letters, newspapers, and express packages are carried very rapidly on the trains. Formerly they were sent by stage-coaches or on horseback; but now many passenger trains have one or two cars used for mail purposes alone.

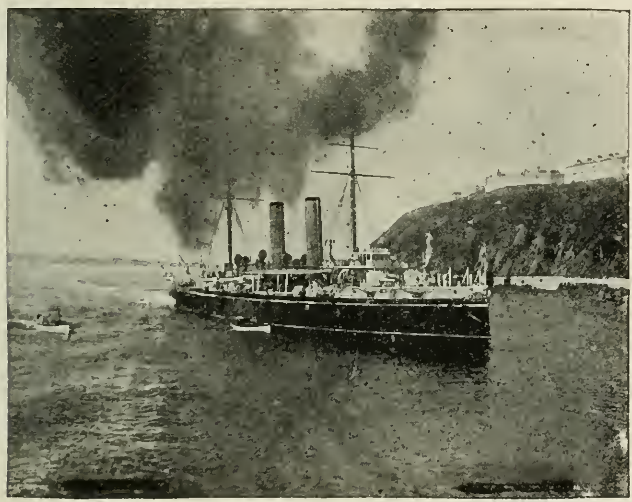


Fig. 112.

A great ocean steamship, loaded with Canadian produce, leaving Quebec to cross the Atlantic Ocean to Great Britain.

It is clear, then, that good roadways, whether made of soil, water, or iron, are a great help to trade. In fact, without them there could be very little commerce. The waggon roads in the country and city are of great value in carrying goods for short distances, as, for instance, to the river, wharf, or railway-station, where boats and trains are used to carry them farther.

Not only is there commerce on the land, but as we have already seen (p. 61), thousands of vessels are engaged in carrying freight on the ocean or on the Great Lakes. They are constantly passing up and down the coast, going from one port to another, carrying loads of lumber, coal, fish, and hundreds of other articles.

Vessels are also coming and going at all times between Canada and other countries (p. 63), bringing materials which we need, and carrying away some of our products (Fig. 112).

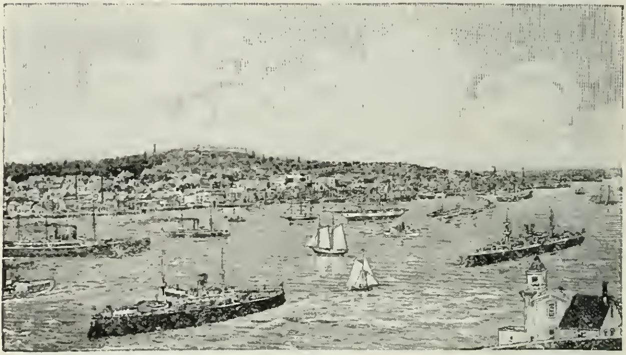


Fig. 113.

View of Halifax, N.S.

Note the great battle-ships lying at anchor in the harbor.

In order to protect, if necessary, its great fleet of merchant ships which navigate the ocean highway, Great Britain maintains a vast number of powerful iron-clad battle-ships and swift armored cruisers, which are always in readiness at the various seaport or naval stations of the Empire (Fig. 113), of which Canada is proud to form a part.

XIII. GOVERNMENT

Every boy and girl has heard men talk about *voting* and has noticed how interested they often become as election time approaches. But do you know what voting is for? Do you know why the day for voting is called *election day?* Find out what you can about voting and elections.

Laws or *Acts of Parliament* and *Members of Parliament* are frequently mentioned when men are talking about election. So are also *offices* and *officers*, such as *mayor* or *reeve*, *alderman* or *councillor*. Can you name any Laws or Acts; and do you know any officers? You have heard of the mayor or reeve, of the aldermen or councillors, and of the members of Parliament; can you state anything about them? You have certainly seen a policeman; what are his duties?

In our study of commerce we saw that it required a long time to reach our present way of living and carrying on trade. So it is with our government. At present we have many laws, and officers, or persons appointed to carry out the laws, while long ago there were very few of each. Let us see why this is so.

The farmer manages his farm nearly as he pleases. He puts up fences, sells his grain, or feeds it to stock, as seems to him best; and when repairs are needed he looks after them himself. The miller builds a large or small mill, uses old or new machinery, grinds much or little corn, and makes repairs, as he chooses. In each case one man owns and uses the property.

But there are some things that no one man or company owns, and yet all wish to use. These are known as *public* property. This is true, for instance, of roads. All people drive or walk over them, yet they belong to no one person. Who, then, should build roads in the first place, and who should make the necessary repairs on them?

In the early days of the country, this, as well as many other matters of interest to all, was part of the business of the government. But it was found that the better way to do, was for those who used the roads in a small section of the country or *township*, to meet together and choose or appoint certain men who should make it a part of their business to see that the roads were built, and that they were kept in good order. Such men are known as *councillors*.

These *councillors* were naturally those in whom the people had the greatest confidence. They were not only intrusted with the control of the work to be done, but received power to tax or assess all the owners of property to pay for the cost of this work and its management.

Schools also are not owned by one person, and yet many wish to use them. Good buildings, large playgrounds, and good teachers are all desirable, but who should provide for them? This matter was also settled in the same way, by those interested meeting together and electing by vote *trustees* or officers whose duty it was to see that the schools were properly managed.

So it was also with many other important matters, in which all the people were interested. For example, there are usually some persons in every community who are liable to take things that do not belong to them, or who are noisy and quarrelsome. Laws were passed in regard to such offenders, and officers called *magistrates* were appointed to carry out these laws, with other officers, called *constables*, to arrest the offenders when necessary.

Thus far we have been considering only matters which might refer to a small group of people living near together in a small district, *township* or *parish*, or in a *village* or small *town*. But there are some matters that cannot be settled in this manner, because other people, who are neighbors, but belong to another district, are also interested in them.

In order that all should work in harmony together for the good of the whole community, the head men of each district or village or small town unite to form what is called the *County Council*. These men are called in some places the *reeve* and *deputy-reeve*, in others the *mayor* or the *councillor*, and they have the power to make laws governing the *county*. The chief officer of the County Council is the *Warden* of the County.

In a similar manner counties unite together to send representatives to discuss matters in which they are all interested, and to make laws to regulate these matters. The union of these counties forms the *Province*, and their representatives the *Provincial Legislature* or *Parliament*.

For example, should it happen that the managers of a railway company charge too much for passengers or freight, laws must be passed, compelling them to charge reasonable rates. But as these railways may be hundreds of miles long, the people of a single town or county could do very little with them. It is therefore necessary for those living perhaps hundreds of miles apart to unite in some way in order to make laws to control the management of these railways: and this is done through *laws* enacted by *Parliament*.

Again, it is important that there should be buildings in which the blind, and the deaf and dumb people may be educated, and insane people taken care of. There must also be strong prisons where criminals may be kept. But there are not many such persons in one town or county, and it would be very expensive to take proper care of only a few. This is another reason why a number of people should unite to make laws on some matters.

Fig. 114.

Institution for educating the deaf and dumb at Belleville, Ont.

We have seen why there must be a government for each small section of the country, and now we see why there must also be a government for each province.

All the men of a province cannot assemble at one point from distances many miles apart in order to attend to such matters. Even if they could make the journey at the time appointed, there would be so many of them that they could not hear one another speak, and little business could be carried on.

For these reasons it is necessary for one man to be elected to *represent* many others. Where there are a great number of people, he may represent many thousands.

Suppose, for instance, that there are a million people living in a province, and that one man is elected to represent every ten thousand; there will be one hundred such men chosen, and it will be their duty to meet together and make laws for the whole million.

Such men being chosen to represent the others, are often called *representatives;* and because they meet together to discuss the affairs of the province, their united body is called the *Parliament* (or *general council* or *conference*), and they are *Members of Parliament.* As they have the power to make or repeal laws for the province, their united body is also called the *Provincial Legislature*, and they are said to be the members of it.

In order to meet together these men must assemble in a certain place, and that place is called the *Capital* (or head city) of the province. This is a city, where there is a fine building, called the *Parliament House* (Fig. 116), in which the members of parliament hold their meetings, and the government officers of the province have their offices.

Fig. 115.

The Temple Building, in Toronto, Ont. A lofty city building, containing many people.

We have seen that in the town or county the people not only made laws through their councillors, but also appointed men to see that they were enforced. Such men are necessary for the province also. The leading officer of the parliament of each province is the Lieutenant-Governor, who is intrusted with the carrying out of the laws passed by the parliament. This he does through his officers, or advisers, called the *Ministry*, the chief of whom is called the *Prime Minister* or *Premier*.

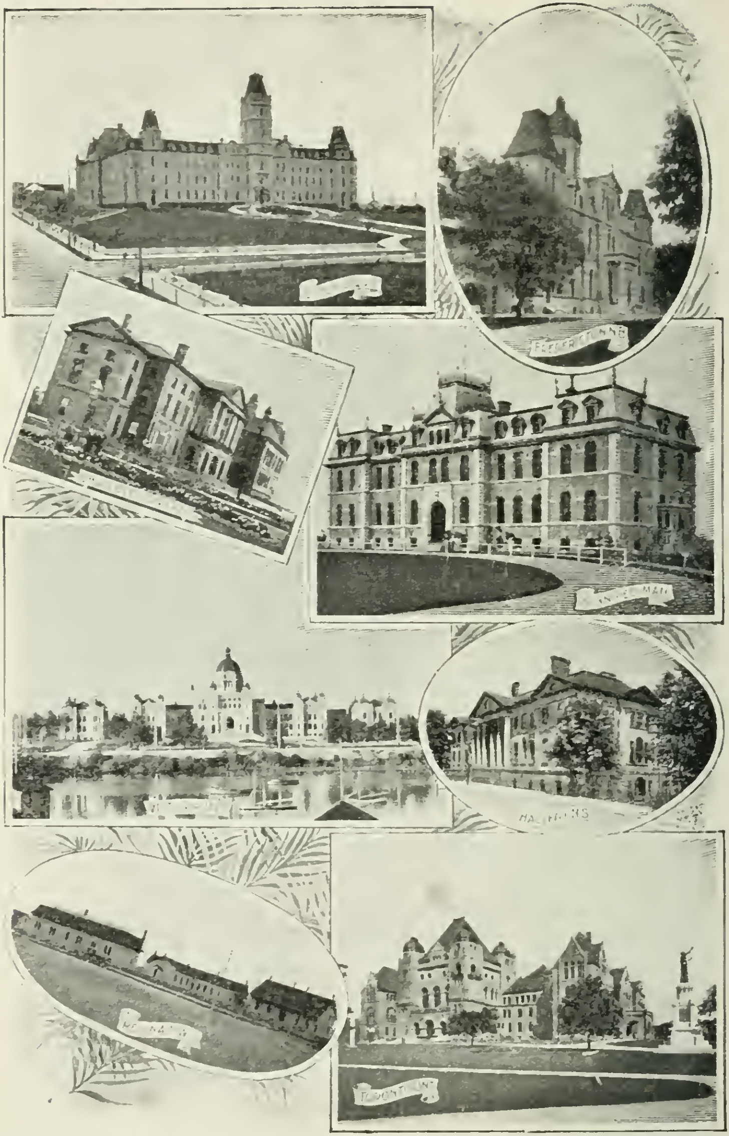


FIG. 116.
Provincial Parliament Buildings.

In large cities, where there are many people, necessitating great buildings (Fig. 115) and many officers of the law, the people there are governed by representatives, just as those of the whole province are governed. These men who make the laws for cities are called *Aldermen*, and their assembly the *City Council*. The highest officer elected to execute the laws in a city is known as the *Mayor*. The building in which the City Council meets, and in which the mayor and his officials have their offices, is called the *City Hall* (Fig. 117). While a city is governed by its own officers in some matters, it also elects members to the Provincial Parliament and is still a part of the Province and under its authority.

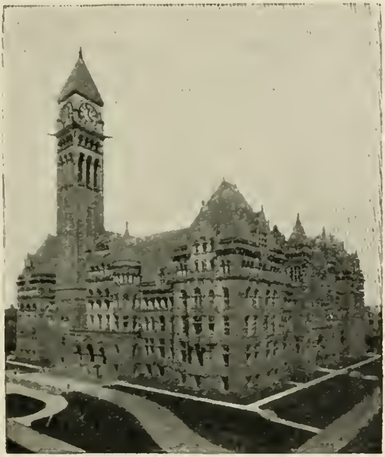


Fig. 117.
The City Hall, Toronto, Ont.

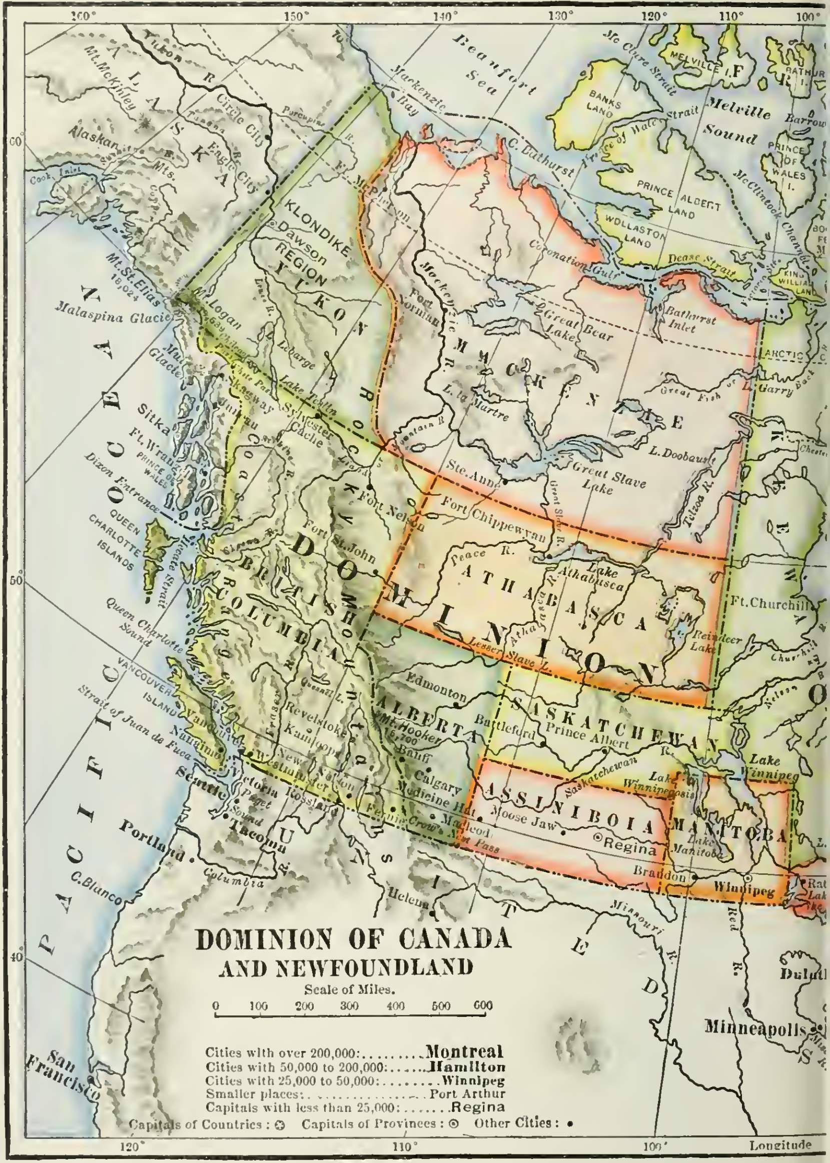
In the Dominion of Canada there are several provinces (Fig. 118), and there are some matters that no province can decide alone, because all the others are equally interested in them. For instance, it would be a great hindrance to trade and travel if each province made its own money; for then each one might have a different kind, with coins of different names and weights. Every time a traveller passed from Nova Scotia to Quebec or Ontario, he might be obliged to take much time and trouble to exchange his money for another kind. So, also, in the case of railways, as we have already seen (p. 121). Mail is another matter that concerns all the provinces, and there are others besides. Can you mention some?

It is evident, therefore, that we need a Dominion Government as well as Provincial, City, Town, County, and Township Governments. The reason for calling it the Dominion Government is, that the different provinces are united to form one British American Dominion, or Dominion of Canada (Fig. 118).

The vast tract of land between the Provinces in the east and British Columbia in the west, extending as far as the Arctic Ocean (Fig. 118), was formerly under the control of the Hudson Bay Company. This powerful and ancient trading company held exclusive trading rights in this region. In order to unite the whole country from the Atlantic to the Pacific Ocean, the Dominion Government purchased these rights. Now the whole of the continent of America north of the United States to the Arctic Ocean, with the exception of one portion called Alaska, is under one authority or *dominion*.

A narrow strip of the eastern coast of Labrador from the Strait of Belle Isle to Hudson Strait is under the authority of Newfoundland. This is only inhabited by a few Indians, and in the summer time by fishermen from that island.

If the people of one province cannot meet in a body to make laws, certainly those of all the provinces cannot do so. Representatives or Members of Parliament are therefore elected and sent from all the provinces to one place, where they consider the affairs of the whole Dominion. The place where they meet is the City of Ottawa, and

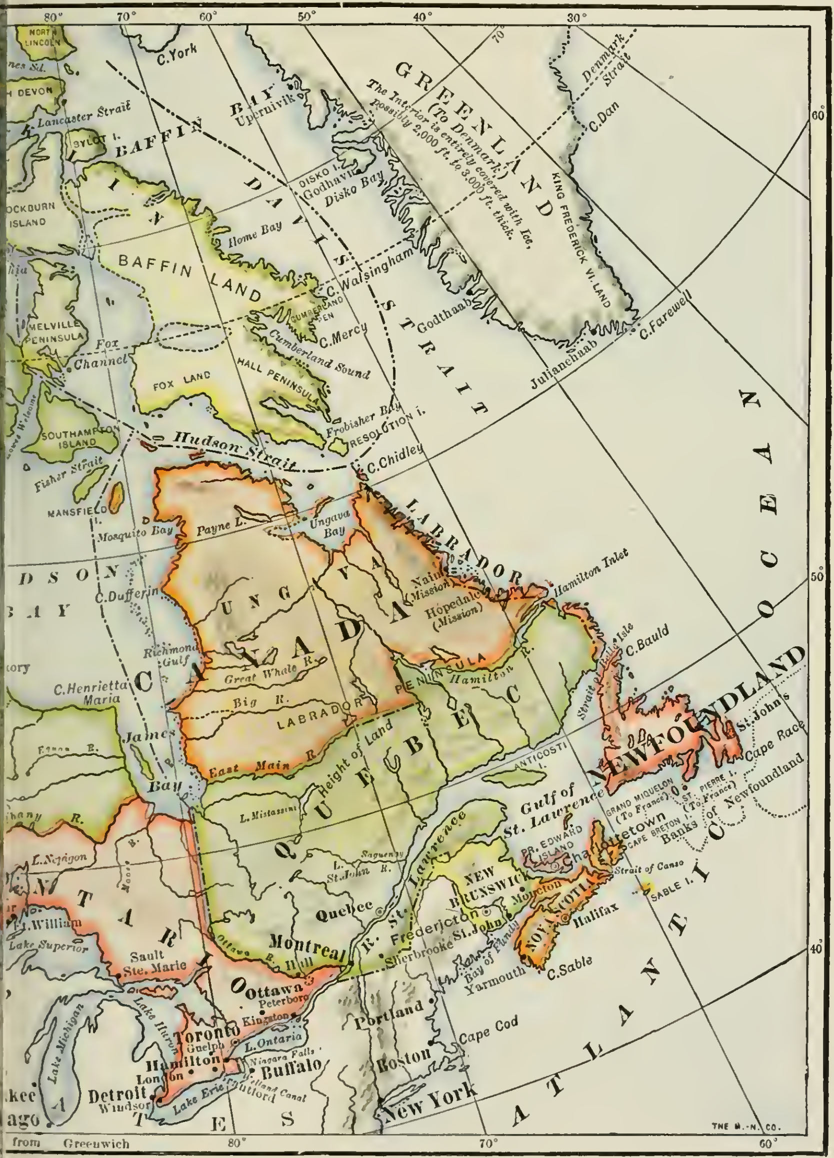


DOMINION OF CANADA AND NEWFOUNDLAND

Scale of Miles.

0 100 200 300 400 500 600

Cities with over 200,000: .... **Montreal**
Cities with 50,000 to 200,000: ...... **Hamilton**
Cities with 25,000 to 50,000: .... **Winnipeg**
Smaller places: .... Port Arthur
Capitals with less than 25,000: .... Regina
Capitals of Countries : ⊛ Capitals of Provinces : ⊙ Other Cities : •


80°
70°
60°
50°
40°
30°
70°
60°
50°
40°
NORTH LINCOLN
C.York
DEVON
Lancaster Strait
BYLOT I.
BAFFIN BAY
Upernivik
GREENLAND (To Denmark)
The Interior is entirely covered with Ice, possibly 2,000 ft. to 3,000 ft. thick.
Denmark Strait
C.Dan
KING FREDERICK VI. LAND
DISKO I.
Godhavn
Disko Bay
DAVIS STRAIT
COCKBURN ISLAND
Home Bay
BAFFIN LAND
C.Walsingham
CUMBERLAND PEN
C.Mercy
Cumberland Sound
Godthaab
Julianehaab
C.Farewell
MELVILLE PENINSULA
Fox Channel
FOX LAND
HALL PENINSULA
Frobisher Bay
RESOLUTION I.
SOUTHAMPTON ISLAND
Hudson Strait
C.Chidley
Fisher Strait
MANSFIELD I.
Mosquito Bay
Payne L.
Ungava Bay
LABRADOR
HUDSON BAY
C.Dufferin
UNGAVA
Nain (Mission)
Hopedale (Mission)
Hamilton Inlet
CANADA
Richmond Gulf
Great Whale R.
Big R.
LABRADOR
PENINSULA
Hamilton R.
Strait of Belle Isle
C.Bauld
C.Henrietta Maria
James Bay
East Main R.
Height of Land
QUEBEC
ANTICOSTI I.
NEWFOUNDLAND
St. John's
Cape Race
ATLANTIC OCEAN
L. Mistassini
Gulf of St. Lawrence
GRAND MIQUELON (To France)
ST. PIERRE I. (To France)
Banks of Newfoundland
CAPE BRETON I.
Charlottetown
PR. EDWARD ISLAND
Saguenay
L. St.John R.
NEW BRUNSWICK
Moncton
Strait of Canso
SABLE I.
L. Nipigon
ONTARIO
Moose R.
Ft. William
Lake Superior
Sault Ste. Marie
Quebec
R. St. Lawrence
Fredericton
St. John
NOVA SCOTIA
Halifax
Montreal
Ottawa R.
Hull
Sherbrooke
Bay of Fundy
Yarmouth
C.Sable
Ottawa
Peterboro
Kingston
Portland
Lake Huron
Lake Michigan
Toronto
Guelph
L. Ontario
Cape Cod
Hamilton
London
Niagara Falls
Buffalo
Boston
Welland Canal
Detroit
Windsor
Lake Erie
New York
UNITED STATES
from Greenwich
THE M.-N. CO.

it is on that account called the *Capital of the Dominion.* Here are the Parliament Buildings (Fig. 119) in which the meetings are held; and here also are the offices of the government officers.

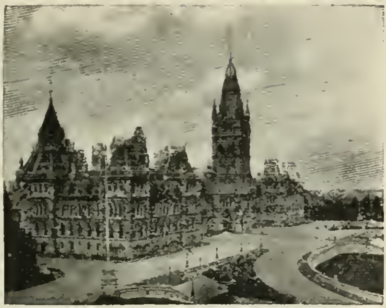


FIG. 119.
Dominion House of Parliament, at the capital, Ottawa.

The representatives from all the provinces form the Dominion Parliament. This is just like the Provincial Parliaments; the Dominion members of Parliament making laws for the whole country, while the Provincial members make laws for their own provinces only.

FIG. 120.
QUEEN VICTORIA.
From a photograph taken in 1898.

The Dominion of Canada forms part of the great British Empire, of which King Edward VII. is now the crowned head, and it is in his name that all the laws are made, and by his authority that they are carried into effect, through his ministers. As, however, the King cannot be present at the meeting of the parliaments of the many parts of the British Empire, which are widely separated from each other, he sends some one to represent him in each part. To Canada the Governor-General comes as representative of the King, and he chooses his ministers to carry on the government from among the members of Parliament who come from the different provinces. Before these ministers can make any new law they must have the consent of the majority of the members of Parliament, and nothing can be done contrary to the will of the majority of the people's representatives. Should any minister attempt such a thing, the members of Parliament can demand that the Governor-General dismiss his ministers and supply their places with men in whom Parliament will have confidence.

Fig. 121.
KING EDWARD VII.

Fig. 122.
QUEEN ALEXANDRA.

The Governor-General of Canada is appointed by his Majesty for a term of five years, and has a residence (Fig. 123) called Rideau Hall in Ottawa.

Besides the officials who carry out the details of the government work at Ottawa, there are many men called *officers of the Crown* who work under the control of the

Government in all the different parts of the country, in the post-offices, custom-houses, etc. Do you know any officers of the Dominion Government? Of the Provincial Government? Of the City, Town, or County Government?

FIG. 123.
Rideau Hall, the residence of the Governor-General, at Ottawa.

We have seen how the people in small districts arrange for their home government, and how, uniting with those in other districts, they elect some men to represent them at the Provincial Capital, and others to represent them at the Dominion Capital. These representatives are elected by the votes of the people; whoever receives the largest number of votes in a district being chosen to represent the people of that district.

Canada is a colony of Great Britain, an offshoot from the Mother Country, and the form of government in Canada is similar in form to that of Great Britain, which is called a *Limited Monarchy*. Although the monarch governs the country through ministers or servants of the Crown, yet the Commons or members of parliament, representing the people, have the right to say in what manner they shall be governed; that is, they alone have the right to *make* the laws.

Other countries have different forms of government from ours. Some, like our neighboring country, the United States, have a government, called a *Republic*, where the people not only vote for their representatives but also for their chief ruler, who is called a *President*. The President is elected only for a term of years (in the United States the term is four years).

In some countries, people are by no means so free as we are, and only few of them, comparatively, have the privilege of voting for representatives. Under some governments in Europe, and almost all of those in Asia, the people have very little to say about the laws that shall govern them. Nor do the laws protect all equally for the high officers may say freely what they think, while others may not do this. They must obey their rulers blindly, just as little children are expected to obey their parents.

Such a government cannot be called a *Limited Monarchy* or a *Republic;* it is an *Absolute Monarchy* or *Despotism*. This means that the ruler has complete or absolute power to do what he chooses, without regard to the desires of the people of the country, or to the laws of the land. For instance, he can put men to death without any trial, a thing that the laws of our country do not allow. China and Turkey are examples of this kind of government.

There are other nations in which the people have more freedom than this, but not so much as we have. They are allowed freedom to do some things which they wish, and a certain number of them have the privilege of voting for representatives in their parliaments. In some matters, however, they are compelled to obey, without even asking any questions. Spain has a government of this kind. Since the people have some rights by which the monarch's power is checked or limited, this government may also be called a *Limited Monarchy*.

When we sum all up, we find that in Canada we have one of the most free and most economical and just forms of government that can be found. We have no Royal Family to maintain at great cost: neither have we constantly recurring presidential elections with their enormous expenses, costing more than any royal family. Almost every man of the age of twenty-one has a right to vote for some one to represent him. Our judges are appointed to their positions for life, are independent of party influence, and are noted for their integrity and ability. Justice is impartially dealt out to rich and poor, and no country is more lightly taxed for the welfare and good government of the people.

XIV. MAPS

We often wish to represent a country so as to tell, at a glance, its shape, and where the mountains, rivers, and cities are located. Such a drawing, called a *map*, may be made of any place, no matter how large or small it is.

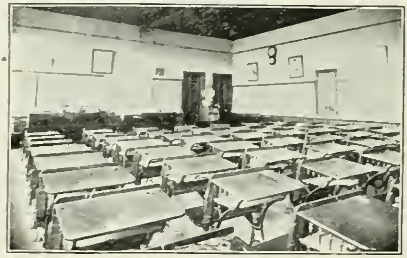


Fig. 124.

Picture of a schoolroom which is 32 feet long and 32 feet wide.

Suppose we desired to draw only a schoolroom (Fig. 124), which is perhaps 32 feet long and 32 feet wide. It would not be easy to find a piece of paper so large as that, and it would not be necessary to do so. A small piece would do, because 1 inch upon it could be understood to represent several feet in the room.

In this case let an inch stand for 16 feet. Since the room is 32 feet on each side, and there are two 16s in 32, the drawing will be just two inches long and two wide. To place the desks and aisles properly, we will need to use a ruler divided into sixteenths, for one foot in the room represents $\frac{1}{16}$ of an inch on the ruler.

The ends and sides are marked (Fig. 125) north, east, south, and west. The teacher's desk is $3\frac{1}{2}$ feet in front of the north wall. There is a row of desks about 4 feet from the west wall. The desks are just 2 feet long, with eight in a row $1\frac{1}{4}$ feet apart. There are seven rows; and the aisles between them are each $1\frac{1}{4}$ feet wide. Here is a map of the schoolroom (Fig. 125). Measure each part to see if it has been drawn correctly, using a foot rule that shows the sixteenths of inches. How large is the desk? The piano.

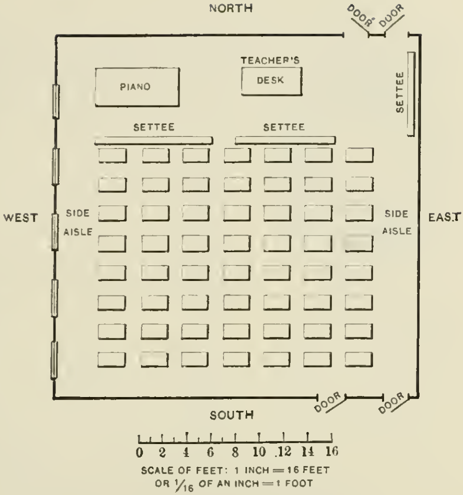


FIG. 125.

A map of the schoolroom shown in Figure 124.

When a person draws in this way, letting a certain distance on the paper represent a much greater one, he is said to use a *scale*, or to make a map *according to a scale*. In the schoolroom just described (Fig. 125), the scale is 1 inch to 16 feet.

In the next drawing, that of the school yard (Fig. 126), the scale must be much smaller, because the yard is so

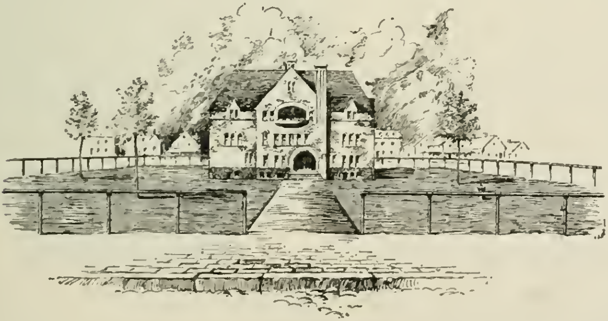


FIG. 126.

Picture of a school yard. Figure 127 shows a map of this.

much larger than the room, and in the same proportion would occupy too much space. Here one inch represents 140 feet. According to that scale, find out how large the yard and the school building are (Fig. 127). Find how far the trees are from each other, from the nearest fence, and from the building.

Can you not make a map of your own schoolroom? What scale will you use? Mark in your own desk, but omit the others, if you wish. You might also draw a map of your school yard. If you prefer to do so, find its size by stepping or *pacing* it off, making each of your steps about two feet long. Measure the building in the same way. After having finished these two maps, draw a third one, including in it not only the school yard, but also a few of the neighboring streets and houses. The scale for this might perhaps be 1 inch for every 500 steps.

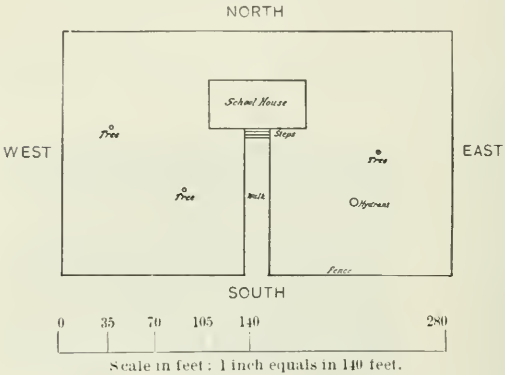


FIG. 127.
A map of the yard shown in the picture, Figure 126.

All maps are drawn to a scale in this way, whether they represent a school yard, a province, the Dominion, or even something still larger. Opposite page 137 you will find a map of North America (Fig. 129). On what scale is it drawn? Look at some other maps to find out the scale.

Maps are used a great deal to show the direction of one place from another. But a person must first understand what is meant by north, south, east, and west. Probably you already know that.

One of the easiest ways to find the direction is by a *compass* (Fig. 128). This is simply a piece of steel, called a needle, that swings about easily and always points to the north. It is magnetized, like the horseshoe magnets that you have seen, and it points northward, because something draws it in that direction ; but no one knows certainly what this "something" is.

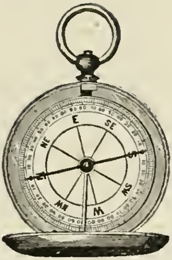


Fig. 128.

A compass. The letter N means north. What do the other letters stand for? Notice that the needle is pointing north and south.

When the stars are shining, one can tell which direction is north by the help of the Great Dipper. The two stars on the edge of the Dipper point toward the North Star. It is so bright that it can be easily picked out, and it is always to the north of us.

One can also find direction by the help of the sun ; for, as you know, it rises in the east and sets in the west. Accordingly, when one faces the rising sun, his right side is to the south and his left to the north. Which direction is on his right and left when he faces the west? The south? The north?

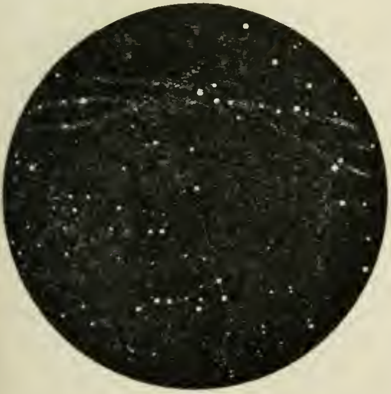


Fig. 129.

Diagram showing the North Star in the centre, the Dipper, and the pointers.

Northeast means halfway between north and east. Southeast means halfway between south and east. What, then, do northwest and southwest mean?

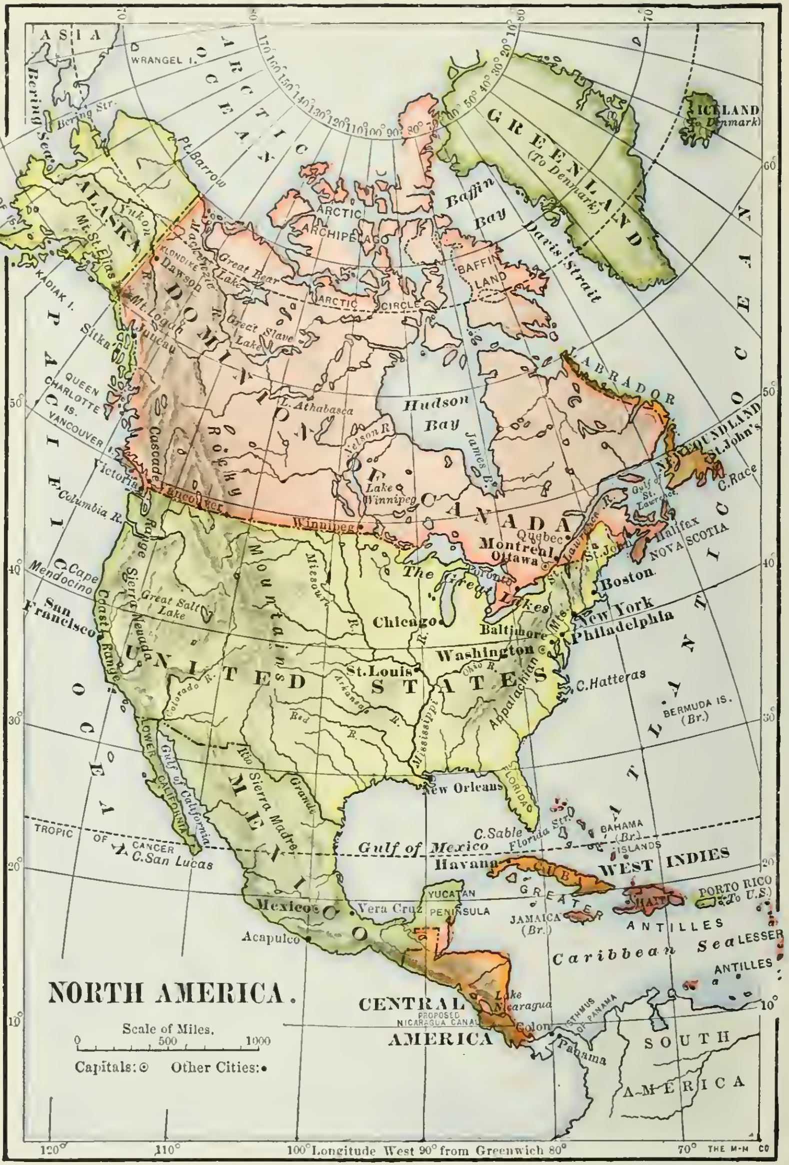
Point north, east, west, south, southwest, northeast, northwest. Walk a few feet in each direction. What direction is your desk from that of your teacher? From the desks of your friends? From the door? What direction is your home from the schoolhouse? From other houses? In what directions do some of the streets extend?

Now let us tell directions on the map. Lay your drawing of the schoolroom upon your desk, so that the line representing the north side of the room is toward the north. Also place yourself so that you are facing directly north as you look at the map. If your desk faces the wrong way for this, turn round, or put your map upon the floor. Now, north on the map is also north in the room, and the other directions on the map correspond with those in the room. In which direction, on the map, is the door from your desk? From the teacher's desk? Place your map of the school yard in the same position and give the directions.

You see that the north side of this map is the side farthest from you; the east side is on your right, the south next to you, and the west is on your left. When a map is lying before us, we usually look at it from this position.

But it is not always convenient to have a map lying down, especially in the schoolroom, where it must be hung up so that the whole class may see it.

Let us hang up one of these maps and take particular pains to put it upon the north wall. Which direction on the map is north now? It is evident that north must be *up*, while east is *on the right*. south is *down*, and west is *on the left*. Certain lines, called lines of longitude, extend due north and south, and others, called lines of latitude, east and west. You should drill yourself to understand directions on maps.


NORTH AMERICA.
Scale of Miles.
0 500 1000
Capitals: ⊙ Other Cities: •
ASIA
WRANGEL I.
ARCTIC OCEAN
Bering Sea
Bering Str.
PRIBILOF IS.
Pt. Barrow
ALASKA
Yukon
Mt. St. Elias
KADIAK I.
Mt. Logan
Juneau
Sitka
Klondike
Dawson
Mackenzie R.
Great Bear Lake
Great Slave Lake
ARCTIC ARCHIPELAGO
ARCTIC CIRCLE
Baffin Bay
BAFFIN LAND
Davis Strait
GREENLAND (To Denmark)
ICELAND (To Denmark)
LABRADOR
NEWFOUNDLAND
St. John's
C. Race
DOMINION OF CANADA
L. Athabasca
Nelson R.
Hudson Bay
James B.
Lake Winnipeg
Winnipeg
Rocky Mountains
Cascade Range
QUEEN CHARLOTTE IS.
VANCOUVER I.
Vancouver
Victoria
Columbia R.
PACIFIC OCEAN
Cape Mendocino
San Francisco
Coast Range
Sierra Nevada
Great Salt Lake
UNITED STATES
Missouri R.
Mississippi R.
Colorado R.
Arkansas R.
Red R.
Ohio R.
St. Louis
Chicago
The Great Lakes
Toronto
Quebec
Montreal
Ottawa
St. Lawrence R.
Gulf of St. Lawrence
St. John
Halifax
NOVA SCOTIA
Boston
New York
Philadelphia
Baltimore
Washington
Appalachian Mts.
C. Hatteras
BERMUDA IS. (Br.)
ATLANTIC OCEAN
New Orleans
FLORIDA
C. Sable
Florida Str.
BAHAMA (Br.) ISLANDS
Gulf of Mexico
TROPIC OF CANCER
Havana
CUBA
WEST INDIES
GREATER ANTILLES
HAITI
PORTO RICO (To U.S.)
JAMAICA (Br.)
LESSER ANTILLES
Caribbean Sea
LOWER CALIFORNIA
Gulf of California
C. San Lucas
Rio Grande
Sierra Madre
MEXICO
Mexico
Vera Cruz
Acapulco
YUCATAN PENINSULA
CENTRAL AMERICA
Lake Nicaragua
PROPOSED NICARAGUA CANAL
Colon
Panama
ISTHMUS OF PANAMA
SOUTH AMERICA
70
80
170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10
60
50
40
30
20
10
120°
110°
100° Longitude West 90° from Greenwich 80°
70°
THE M-M CO

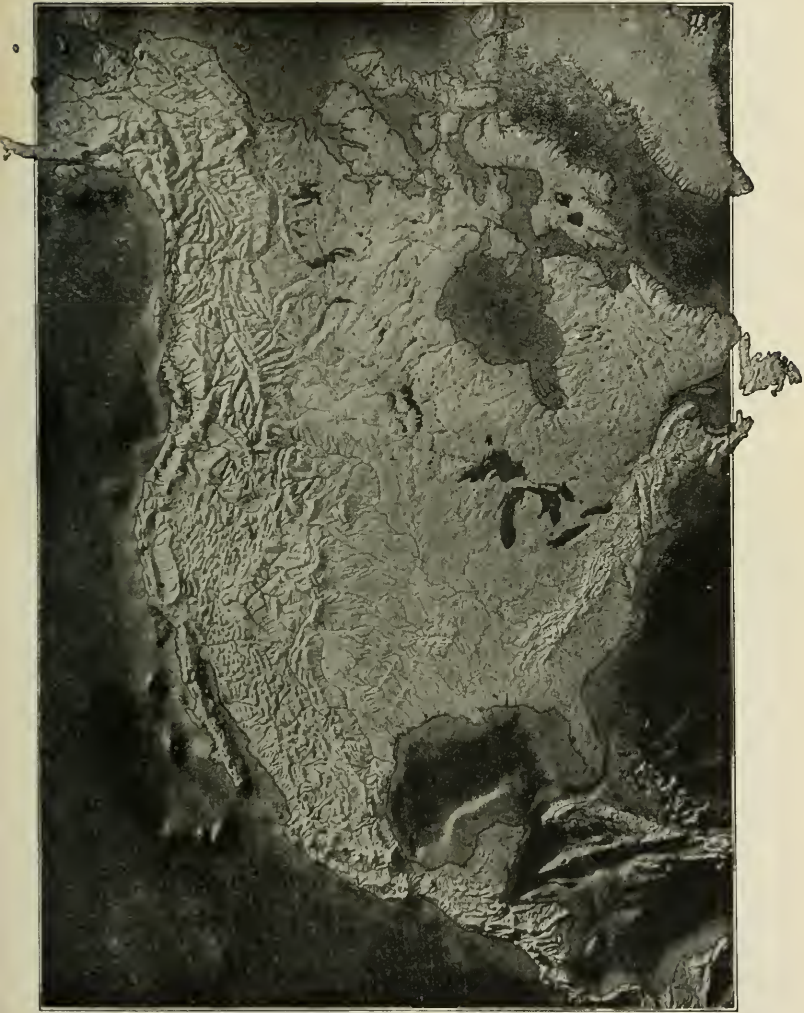


FIG. 131.

Relief Map of North America.
(Modelled by E. E. Howell.)

Give the directions of objects from one another while the map is hanging up. Put up the map of the school yard, and any others that you have, and tell the directions from one place to another.[1]

It is clear now what a map is. It is a drawing telling something about a country, just as a letter may be some writing telling something about a friend. When you read such a letter, you think about your friend, how he looks, what he has been doing, and so on. So when you look at a map, you should think about the country, how it looks, how far apart the places are, and other particulars connected with it.

There is more than one kind of map. Here is a picture of North America (Fig. 131). It shows how this continent might appear if you looked down upon it from some point far above. A picture like this, showing the mountains and valleys, is called a *relief map*. That is, it gives you some idea of the relief or height of the land.[2]

The maps that you have been drawing do not show this. They are flat maps, representing the country as if it were

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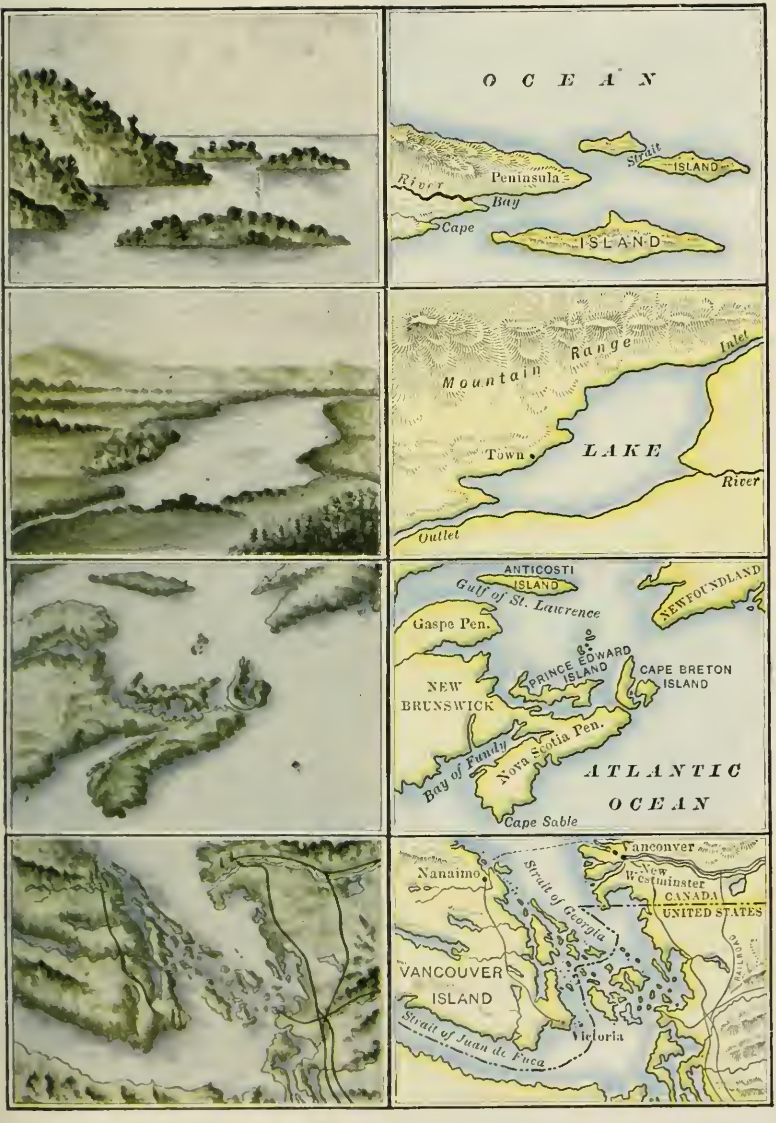
[1] After the children are quite at home in using the map when it is hung on the north wall, hang it on other sides of the room and let them give the directions. This is easy work if properly graded ; but the fact that many children studying geography are confused in regard to directions on the map suggests that caution be exercised.

It is well to bear in mind that this is simply a rule of position that every map maker has adopted to avoid confusion. A picture of any part of the world would be just as correct, if drawn showing the positions reversed as was formerly often done.

[2] If it seem desirable, the teacher may introduce the study of contour maps at this point. The children might draw a contour map of their own neighborhood, and then possibly make a relief map from it by cutting out pieces of cardboard that correspond to the spaces between the lines. Relief maps may also be constructed by modelling in sand or, better still, in putty, as the latter can afterward be colored, if desired.


OCEAN
Peninsula
Strait
ISLAND
River
Bay
Cape
ISLAND
Mountain Range
Inlet
Town
LAKE
River
Outlet
ANTICOSTI ISLAND
Gulf of St. Lawrence
NEWFOUNDLAND
Gaspe Pen.
PRINCE EDWARD ISLAND
CAPE BRETON ISLAND
NEW BRUNSWICK
Nova Scotia Pen.
Bay of Fundy
ATLANTIC OCEAN
Cape Sable
Vancouver
Nanaimo
Strait of Georgia
New Westminster
CANADA
UNITED STATES
RAILROAD
VANCOUVER ISLAND
Victoria
Strait of Juan de Fuca

a flat surface. Opposite page 137 you will find a flat map of North America. Compare it with the relief map opposite and notice the difference.

In Figure 132 you will see the way in which flat maps are made to represent the land and water. No attempt is made on the flat maps to show just what the country looks like, that is, to represent its relief. They merely represent the position and direction of towns, rivers, lakes, etc., just as if the country were perfectly flat.

REVIEW QUESTIONS

AND

SUGGESTIONS FOR STUDY

AT HOME AND OUT OF DOORS

I. THE SOIL

Review Questions. — (1) Of what is the soil made? (2) How can you show that the little bits in it are hard like stone? (3) What happens when stones are rubbed together? (4) If you have ever seen rocks that were decaying and crumbling, tell about it. (5) How does water enter rocks? (6) What happens when water freezes in the cracks? (7) What else helps to crumble the rocks and soil? (8) What is beneath the soil? (9) Make a drawing, like Figure 4, showing the rock beneath the soil. (10) Tell about the depth of the soil. (11) Why is there no soil in some places?

(12) Why is the soil worth studying? (13) Name two things that plants take from it. (14) Of what advantage is a deep soil? (15) Do all plants want the same kind of food? (16) What causes the different kinds of soil? (17) What has made some soils so black? (18) What is fertile soil? (19) Sterile soil? (20) How are some soils robbed of their plant food? (21) What is used to make them fertile once more? (22) Tell what you see in Figs. 1, 2, 3, 4, 5, and 6.

Suggestions for Study at Home and out of Doors. — **Here are things, some of which, at least, you will be able to see or do for yourselves:** (1) Find a place where men are digging a ditch or cellar, to see how the earth looks below the surface. (2) Find a boulder, cliff, old stone wall, or an old headstone in a graveyard, and see if the stone is crumbling. (3) Break some pebbles open to see whether or not they are decayed on the outside and fresh within. (4) Change a stone to dust. (5) Collect several different kinds of soil. (6) Plant beans in each kind, at the same time, and see in which one they grow best. (7) See what the effect would be if no water were given to some of them. (8) Find out what trees and vegetables grow best near your home. (9) What do the farmers prefer to grow? (10) Go to a hot-house to find out what kind of soil is used there, and what is done to keep it fertile. (11) Visit a gardener or a farmer to find out how he cultivates the soil. (12) How many articles can you name, as crockery, for example, that are made of soil or clay? (13) Write a short story about the soil.

II. HILLS

Review Questions. — (1) Is there much land that is really level? (2) What do you understand by rolling land? (3) Were the hills that you know always there? (4) Have you seen water carrying away soil? If so, tell about it. (5) Explain how hills have been made.

(6) What is the base of a hill? (7) The summit? (8) Tell what you learn from Figure 10. (9) From Figure 11. (10) Make a drawing somewhat like Figure 11. (11) On what part of a hill is it coolest? (12) How could you prove this? (13) Why does it often snow on hills while it rains on lower land near by?

(14) What is a swamp? (15) Why should not houses be built on swampy ground? (16) Why are hills liable to be dry? (17) Why is the lowland in cities usually so dry? (18) Why have castles often been built on hills? (19) Why did the earlier settlers place their churches on hills? (20) What other reasons can people have for wishing to look far out over the country?

Suggestions for Study at Home and out of Doors. — (1) Find some ground about your home that seems nearly level. Is it really level? (2) Where is the longest slope in your neighborhood? The steepest one? (3) Observe the water carrying off soil after a rain. Where does the soil go? (4) Write a story about it. (5) Search for a washout after a heavy rain. (6) Where is your highest hill? (7) In what season of the year is it especially pleasant to live on a hill? Why?

(8) Can you find any houses built on low, wet soil? (9) Are their cellars ever very damp? (10) Ask some doctor why one should not live in such places. (11) Find some pictures of castles, showing their location. (12) Is your schoolhouse upon a hill? (13) Name

any houses in your neighborhood that stand on a hill. (14) Where is your most beautiful view? (15) Do your friends agree with you that it is the most beautiful one?

III. MOUNTAINS

Review Questions. — (1) What can you say about the height of mountains? (2) How have they been made? (3) What is a mountain chain or range? (4) How long might it take to climb a mountain a mile high? (5) Why so long? (6) What can you tell about the cold at the summit? (7) How do the trees change in appearance as one mounts higher and higher?

(8) What would you need for a journey up Mont Blanc? (9) Describe the first part of the journey. (10) What is the timber line? (11) What is the snow line? (12) What are avalanches? (13) Describe the view from the top of the mountain.

(14) Mention some reasons why mountains are favorite summer resorts. (15) What kinds of mines are found in mountains? (16) Why is it so fortunate that trees grow so well on mountain sides? (17) What is done with them? (18) Tell what you can about the streams that flow from mountains.

Suggestions. — (1) Watch for clouds that resemble mountains. Make a drawing of them. (2) Find pictures of mountains; note the timber line, the snow line, and other points of interest. (3) Represent a mountain in sand. Show the tree line; the snow line; steep and gentle slopes. (4) Represent a mountain range in sand. (5) In what direction are the nearest mountains? What are they called? How far away are they? Find out interesting facts about them.

(6) Ask some one who has climbed a mountain to tell you about it. (7) Would you care to climb one yourself? Why? (8) Write a story relating the adventures you would expect to meet with in mountain climbing. Describe some of the views you might expect to find. (9) Why do few people live high up on the mountain sides?

(10) Examine a piece of ore (in some museum) and find out how the metal is taken from the rock. (11) Begin a collection for the school by bringing some ores. (12) Look up pictures of woods on mountain sides. You will find several in this book. (13) Find some

pictures which show gorges cut in the mountains by running water. (14) Find out some facts about glaciers.

IV. VALLEYS

Review Questions. — (1) What makes the little valleys? (2) Tell why they must change from year to year. (3) Describe some of those you have crossed on the railway. (4) How many slopes are necessary to make a valley? (5) What is a divide? (6) Tell how large some of the largest valleys may be. (7) How have these very large valleys been formed? (8) What is a plain?

(9) In what parts of mountains do most people live? Why? (10) What is meant by drainage? (11) How do farmers sometimes provide drainage? (12) What is a swamp? (13) Why do roads and railways among the mountains follow the valleys? (14) What is a mountain pass? (15) Where is the most level land usually found? (16) What fields or grounds near you are beautiful? (17) Are there any walks or drives that you greatly enjoy? (18) How do the views change from time to time?

Suggestions. — (1) Find a tiny valley and watch to see if it is changed in any way by a heavy rain. (2) Find a still larger valley in your neighborhood. (3) Find the divide on each side of it. (4) Show that streets and roads are so made that they have a watershed. (5) Make some valleys in clay or sand and show the divides. (6) Where is the largest valley in your neighborhood? (7) Is your home in one of the very large valleys, or in a small one? (8) Show by a drawing like Figure 30 how the largest valleys have been made. (9) Can you show it in any other way? (10) Why should swamp land that has been drained yield uncommonly good crops? (11) Do you know of any roads or railways that follow valleys and wind about the hills? Tell about them. (12) Find some beautiful views in your neighborhood. (13) Make a collection of pictures of valleys. (14) Write a story telling how valleys have been formed.

V. RIVERS

Review Questions. — (1) Describe any stream you have seen. (2) What are rapids and falls? (3) Describe a small stream in the mountains. (4) What does it do with the rocks in its way?

(5) What are tributaries? (6) Does the current grow more or less swift as one goes further down stream? (7) How does the country change in appearance? (8) What becomes of the pebbles? Why? (9) What is meant by the source of a river? By its mouth? (10) Where do rivers obtain their water? (11) What is a spring? (12) What effect has a heavy rain upon a stream? (13) Why do not large rivers dry up in summer? (14) Why does not sediment sink where the current is swift? (15) What is a flood-plain? Why is it level? (16) Explain how a delta is made. (17) What is a river basin? (18) A river system? (19) Why do plants grow well on the banks of a river? (20) What is irrigation? (21) How are rivers useful for drainage? (22) What is water-power? (23) In what way is a river a good road? (24) Give some of the reasons why many cities have sprung up near great rivers.

SUGGESTIONS. — (1) After a heavy rain, follow a small stream from its source to its mouth. (2) Throw a chip into the water, and follow it as far as you can. (3) Why are the pebbles in river beds usually so smooth and round? (4) If there is a brook or river near you, examine its banks. Is it a tributary of another stream? (5) How deep and how wide is it? (6) Trace a brook to its source, if possible. Find several tributaries. (7) What large river is nearest your home? What are its largest tributaries? (8) What is meant by "up a river"? By "down a river"? By right bank? By left bank? By river channel? By river bed? (9) Find a spring. Why is its wâter cool? (10) Observe a well that is being dug, to see if underground water is found. (11) Find a flood-plain along the side of a stream. (12) Find a delta. (13) Do you know of a city that gets its water from a river? (14) Make a small water-wheel, and arrange for a stream of water to turn it round. (15) Visit a mill that is run by water-power. (16) Find some poems describing brooks and rivers. (17) Write a story of a journey from the source to the mouth of a river.

VI. PONDS AND LAKES

REVIEW QUESTIONS. — (1) Why are dams built in rivers? (2) Explain how ponds are made. (3) How do lakes differ from ponds? (4) How are lakes made? (5) Tell what you can about beaver dams. (6) In what other ways may lake dams be made? (7) What is the inlet of a lake? The outlet? The head? The foot? (8) How does it happen that some lakes have no outlet? (9) What about the water then? Why?

(10) What is meant by shore? By beach? (11) What do you understand by a *regular* lake shore? (12) Make a drawing of a cape; peninsula; isthmus; island; bay; strait. (13) Tell what each of these is. (14) What is the cause of these irregularities? (15) Mention a few uses of ponds and lakes. (16) What is a harbor? (17) Why should the water be deep? (18) How can a harbor protect ships from storms? (19) What is a wharf? (20) How are harbors often made? (21) What is a breakwater?

Suggestions. — (1) Build a dam in some small stream and note how rapidly the water collects. (2) Find out more about beavers. (3) Look for a pond or lake and examine the dam that caused it. (4) See if there are both an inlet and an outlet. (5) Walk up the lake; walk down the lake. (6) Examine the shore and notice the different forms of land and water. (7) Find a small harbor. Would every bay make a good harbor? (8) Make a small, irregular hollow in clay and fill it with water to form capes, harbors, and islands. (9) Find some of these in the pictures and maps of this book.

(10) How do men get ice from a lake? (11) In what ways do men catch fish? What kinds of fish have you seen caught? (12) Find pictures of good harbors. Look for the wharves and the breakwater. (13) Build a breakwater to form a little harbor in a small stream or pond. (14) Find out how many feet some of our largest ships sink into the water.

(15) Walk toward the nearest large lake. What are some of its tributaries? Where is the inlet stream? The outlet? What are their names? (16) Name some cities that are on lake harbors. (17) Write a story telling what you would expect to see along a lake shore.

VII. THE OCEAN

Review Questions. — (1) What place does the water of brooks and rivers finally reach? (2) How much of the earth's surface is water? (3) What other facts show that the ocean is very large?

(4) Tell about ocean navigation. (5) What is the cause for irregular ocean shores? (6) Tell what you can about any harbor. (7) Why are large cities found on the fine ocean harbors? (8) Of what use are lighthouses? (9) Name some foods obtained from the ocean. (10) Why do many people go to the seashore in summer?

(11) Do you know of any park or meadow with a stream or lake in it? If so, describe it. (12) Did you ever enjoy watching the water? Where was it? (13) How does the surface of a lake or ocean change at different times?

SUGGESTIONS. — (1) In what direction would you go to reach the ocean? How far is it? (2) Find pictures of large harbors with ships in them. (3) Name several seaport cities. (4) Have some one tell you about a journey across the ocean. (5) Name as many articles as you can that come from over the ocean. (6) How does the captain of a vessel know in what direction he is going, after losing sight of land? (7) How are ships made to move through the water? (8) What use is made of whales? (9) Find out how fish are caught. (10) Ask some one who has visited a summer resort on the seashore to tell you about it. (11) Is there any brook or river that you enjoy visiting? Where is it most beautiful? (12) Tell about some of the storms on the ocean described in Robinson Crusoe. (13) Do you know of any views that are made more beautiful by the presence of water? If so, where are they? Describe them. (14) Collect, from old magazines, pictures of beautiful views with water in them. (15) Write a story, telling what you would expect to see in crossing the ocean. (16) Make a drawing of a ship.

VIII. THE AIR

REVIEW QUESTIONS. — (1) Of what use is air? (2) How can you prove that air is something? (3) Describe the experiments with the bottle. (4) What do they prove? (5) What are winds? (6) Prove that there are winds high above the ground. (7) Why does the air rise over a heated lamp? (8) What causes winds? (9) In what ways are winds useful? (10) How can you prove that there is water in the air? (11) Where does most of it come from? (12) What do the winds do with this water? (13) Of what service is the rain? (14) What becomes of water as it boils? (15) What is water vapor? (16) What is evaporation?

(17) What happens to vapor when cooled? (18) Tell some ways in which you may see condensed vapor. (19) In what ways may the vapor in the air be condensed? (20) Why can you "see your breath" on cold mornings? (21) How are clouds formed? (22) How cold must it be to form snow? (23) How is dew caused? Frost? (24) Of what importance are the dust particles in the air? (25) Tell how you would keep a weather record.

SUGGESTIONS. — (1) Why are stoves made so as to let in air for the fire? (2) What becomes of the air after it enters? (3) How does air reach the wick of a lamp? (4) Try a common drinking glass, instead of a bottle, to show that air takes up space. (5) Heat some muddy water and watch its movement. (6) Why does smoke go up and not down, the chimney? (7) Show how a hot stove causes a movement, or circulation, of the air in a room. (8) Find out how your schoolhouse is ventilated. (9) How many examples can you give of evaporation of water? (10) Cool a piece of glass or iron and notice the vapor condense upon it, when the air is "muggy" or when steam is passing into the air. (11) Why do clouds frequently surround mountain tops? (12) See how early in the evening the dew begins to collect upon the ground. (13) What causes fogs to disappear? (14) Which winds usually bring rain to you? (15) How far have they probably carried the vapor? How long would it take them to do this, if they travelled at the rate of eight miles per hour? (16) Write a story, giving the history of a raindrop.

IX. NATURAL PRODUCTS OF THE LAND AND WATER

REVIEW QUESTIONS. — (1) What do you understand by *natural products?* (2) Name some of them. (3) What are the natural products of your neighborhood? (4) For what are these natural products useful? (5) What becomes of the surplus, when there is more than is wanted at home? (6) Tell something about a farming country and its products. (7) About a fruit-growing district. (8) What do you know about lumbering? (9) About mining. (10) Are there any fisheries in your neighborhood? (11) Name some trades to which lumbering gives employment. (12) Name some of the uses to which iron is put. (13) Name some industries dependent on the products of the farm. (14) On cattle and sheep. (15) On the fisheries. (16) What do we get from mines? (17) From quarries?

Suggestions. — (1) Visit the nearest market, and see what articles are brought there for sale. (2) Find out if these articles are for home use or to be sent away. (3) Visit a railway station, and see what natural products are loaded on the cars. (4) Where are these going to? (5) What natural products does the grocer sell? (6) In what form are they; in sacks, or barrels, or boxes, or tins? (7) Is there any factory in your neighborhood? Or a mill of any kind? (8) Where do they get their raw (or natural) material from? (9) Where are the canned fruit, fish, or vegetables prepared that the grocer sells? (10) Which are home products, and which come from other countries? (11) What natural products do you use for food? For clothing? (12) Where does the coal or wood you burn come from? (13) What materials have been used in building the house you live in, and where do these come from? (14) Write a story about a tree, from the time it is growing in the forest till it is used as lumber in building.

X. OUR DOMESTIC ANIMALS

Review Questions. — (1) What animals are called our domestic animals? (2) Do other countries have the same kind of domestic animals? (3) Where are the great cattle ranches to be found? (4) What animals do our farmers chiefly raise? (5) What animals do we use for drawing loads? (6) Name some of the animals used in other countries. (7) Where is the horse most valuable? The mule or ass? The ox? The elephant? The camel? (8) Where is the dog used for hauling loads? Can you tell why? (9) Why is a camel most useful in the desert? (10) Why is a mule or a burro most useful in the mountains? (11) Why is an elephant best fitted to break through the jungle? (12) What wild animals act as scavengers in some old countries? (13) Name some of them and where they are found.

Suggestions. — (1) Ask some farmer what breed of cows gives the most milk. (2) From which does he get the richest cream, and the best butter? (3) What kind of cattle are the best to fatten for beef? (4) Which breed of sheep give the finest or the longest wool (Fig. 75)? (5) Which make the best mutton? (6) Which breed of hogs is the best to fatten? (7) What does he feed them on? (8) Find out about the different kinds of horses and where they come from; those for carriage use, or for riding; and those for teaming and heavy farm work. (9) Have you a dog? Can he draw you in a sleigh or light waggon? (10) Is he like the dog in Figure 84? (11) Have you ever gone through a creamery? If not, take the first chance you get and see how butter and cheese are made. (12) Do you keep any poultry? (13) Ask some friend to tell you how many eggs are sent away from Canada every year. (14) Name the various kinds of food made from the different parts of a hog.

XI. PEOPLE

Review Questions. — (1) Have you ever seen any people of another color than the white people? (2) Tell where the black people came from, and what sort of a country theirs was. (3) How did they live there, and how is it that there are black people in this country? (4) Can you tell what slaves are, and what is meant by slavery? (5) Are there any slaves in Canada? (6) How did the slaves in the United States become free?

(7) What people are called the yellow race? (8) Describe their dress and appearance. (9) What do we get from their country? (10) Have you ever seen any of this race?

(11) What people are the original inhabitants of our continent? (12) Why are the red men called Indians? (13) Give an account of how the Indians treated the early pioneers. (14) How did the early pioneers of the country travel? (15) How were the Indian people divided? (16) Are there any uncivilized Indians now? (17) What is an "Indian Reservation"? (18) Do any of the Indian children go to school?

(19) How many different white nations are represented in Figure 94? Do any of them speak English? (20) Can people of one country understand those of another? (21) Do all the Indians speak the same language?

Suggestions. — (1) Read the story of "Uncle Tom's Cabin" (you will probably find it in your school library). (2) Why is there no slavery now as there was in the time of the story? (3) Are there any colored boys and girls in your school? (4) You have read "Robinson Crusoe"? What is said about his man "Friday" and slavery? (5) Find out all you can about China (Figs. 88 and 95). Could you pick up rice with two wooden knitting-needles? (6) Have you ever tried to paddle an Indian bark canoe? (7) How is it made? (8) Do you know of any Indian village? (9) Where are there still some wild Indians to be found? (Figs. 89, 90 and 91) (10) Do you know any white people who speak other languages than English? (11) Find out what country they come from. (12) Why can you not understand the Chinamen talking together? (13) Why do the black people not speak their own language as well as English? (14) What other language is spoken largely in Canada besides English?

XII. INDUSTRY AND COMMERCE

Review Questions. — (1) How do men earn a living? (2) What do storekeepers and merchants do? (3) What is commerce? (4) Of what advantage is commerce to a country? (5) Where were the only stores a little more than a hundred years ago? (6) How is one country dependent on another? (7) Who were the first settlers in Canada? (8) What other European nations had settlements on this continent? (9) Why were forts (Fig. 98) and blockhouses (Fig. 96) necessary? (10) When did Canada become British? (11) Who formed a large part of the early British settlers in Canada? (12) Describe the home of a pioneer settler. (13) How did he secure supplies? (14) How was trade carried on in the early days? (15) How did industries spring up among the early settlers? (16) Why does the growth of a city depend upon its situation? (17) Tell something about a backwoods road. (18) What is a pack train? (19) Why must roads be paved in cities? (20) What is the use of canals? (21) Why are railways valuable? (22) How is foreign commerce carried on? (23) How does Great Britain protect the commerce of the British Empire? (24) Describe what you see in Figure 113.

Suggestions. — (1) Make a list of the crops grown in your neighborhood. How is the work of producing them done? (2) Do the same for manufactured articles. (3) Write a story describing an early pioneer's journey to the nearest town. (4) Visit a general store in the country. Describe the visit. (5) Make a list of articles which were probably brought from a distance on the railway or on water. (6) Find out where they come from. (7) Describe some of the roads you have seen.

(8) Visit a factory or a mill. Describe the visit. (9) What goods are manufactured there? Where are they sent to, and by what conveyance? (10) What raw material do they use, and where does it come from? (11) Find out what are the principal articles shipped from Quebec (Fig. 112). From St. John, N. B. (Fig. 104). (12) Visit a freight house or railway station, and see what goods are received and what are sent away. (13) What railways are in your neighborhood? Find out where they run to. (14) Tell about any steamers you have seen; where they go, and what they usually carry. (15) Name as many substances as you can that came across the ocean (Fig. 95). (16) Find out some facts about the different articles named in Fig. 95. (17) Write a story giving the history of the material of your dress or coat.

XIII. GOVERNMENT

Review Questions. — (1) Name a few things that no one person owns and that all wish to use. (2) What system was found best for looking after the roads? (3) Why are magistrates and constables necessary? (4) What are laws? (5) Why should towns, villages, and districts unite to make laws? (6) What is the union of their representatives called? (7) Why should counties unite to make laws? (8) What is their united assembly called? (9) Name some of the objects for which they unite. (10) What is a province? (11) How are laws made in the province? (12) Why are the representatives of the people called members of parliament or of the legislature? (13) Where do the members of parliament meet? In what building? (14) What is the capital of your province? (15) Who is the leading officer of the government? (16) Through whom does he carry out the laws made by parliament? (17) Why must large cities be governed by representatives? (18) What are these representatives called? Where do they meet?

(19) Why should not each province make its own money? (20) Why is our country called the Dominion of Canada? (21) How did the various provinces become united? (22) What part of the continent of America belongs to the Dominion of Canada? (23) Where do the members of the Dominion Parliament meet? (24) Why is Ottawa called the capital of the Dominion? (25) Of what Empire does Canada form a part? (26) What is the form of government in Canada? (27) What is meant by a "Limited Monarchy"? (28) Name our late Queen, and the present King and Queen. (29) Who represents the King in Canada? (30) Where does he reside? (31) What is the meaning of "being elected"? (32) What is a republic? A despotism?

SUGGESTIONS. — (1) Who attends to repairing the roads and streets where you live? (2) What officers look after the schools? (3) What are taxes? (4) Are there any public buildings like a Deaf and Dumb Asylum in your neighborhood? (5) In what province do you live? (6) What is the Capital of your Province? (7) How far is it from your house, and in what direction? (8) Who is the Lieutenant-Governor of your Province? (9) If you live in a city, who is your Mayor? If in the country, who is your Reeve? (10) Where is the City Hall? (11) Ask some friend who has travelled abroad if he had much trouble with foreign money. (12) In what direction is Ottawa from where you are, and how far away is it? (13) Who is living at Rideau Hall now? (14) Ask some one to show you a ballot-paper and how to vote. (15) What are the great advantages in being a Canadian?

TARR AND McMURRY GEOGRAPHIES

OUR EARTH AS A WHOLE

A FIRST BOOK OF MODERN GEOGRAPHY

PART II

WITH COLORED MAPS AND NUMEROUS ILLUSTRATIONS, CHIEFLY
PHOTOGRAPHS OF ACTUAL SCENES

REVISED AND ADAPTED FOR CANADIAN SCHOOLS

By W. C. CAMPBELL

Author of "Modern Geography," etc.

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PREFACE

This little book is a continuation of the child's first step in the study of geography, as set forth in "Our Home and its Surroundings." The same plan has been adopted and the same principles followed. The object has not been to produce a Gazetteer and an Atlas of the World, but to create interest and to stimulate inquiry.

Form. — As in the first part, the form is convenient to handle, the type clear to read, and the subject treated in such a manner as to appeal to the child's natural desire to gain knowledge with the least possible effort.

Maps. — These will be found to contain all that it is important to know at this stage; not being cumbered with too many unnecessary names, they are clear, distinct, and impressive.

Illustrations. — The illustrations have been carefully selected, with the view of impressing facts and scenes on the memory. They are, in nearly every case, actual photographs, and are intended to be supplementary to the text in their educational value.

Reviews and Suggestions.—These have been given, not with the object of supplying a series of set questions, but of assisting the memory of the pupil and of hinting to the teacher a broader field of inquiry.

Appendix. — Figures and statistics have been rarely mentioned throughout the book, as it has not been considered advisable to burden the young memory with such detail. In the appendix, however, will be found much valuable information, which can be made available for supplementary lessons.

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OUR EARTH AS A WHOLE

I. FORM AND SIZE OF THE EARTH[1]

Its Form. — Hundreds of years ago, before America was discovered, men thought the earth was flat. They travelled so little that they had no idea of its form or of its size.

A few men who had studied the matter believed that the earth was a round ball, and that if one travelled straight on in any direction, he would in time return to the place from which he started. You can understand this by pushing your finger around on the outside of an orange, until it comes back to the starting-point.

Christopher Columbus believed this, and went to Spain, hoping to obtain money to secure ships for a long voyage to prove it.

Men were at that time in the habit of going to a land, called India. for spices, silks, and jewels. To reach India from Spain they travelled thousands of miles *eastward:* but Columbus said that if the earth were round, like a ball, India might be reached by going *westward* across the ocean, and the distance would be much less. He therefore asked the king of Spain for ships and men to make such a journey.

The king refused the request, because the idea seemed ridiculous; but the queen came to his aid, and, at last, on August 3, 1492, he sailed westward on a voyage from which many thought he would never return; but, after a journey of several weeks, land was reached on October 12.

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[1] The use of a globe in this study is very important. Small globes may be obtained from dealers in school supplies at a very slight cost.

Thinking he had reached India, he called the natives Indians; but instead of that he had discovered Cuba and other islands near the coast of North America; a continent and large ocean still lay between him and India. These newly discovered lands became known as the *New World*, to distinguish them from the *Old World*, where all white men then lived.

FIG. 1.

Columbus landing in America and taking possession of it in the name of the king of Spain.

After Columbus returned in safety, other men dared to explore the New World. One of them, named Magellan, started to sail round the earth; and though he was killed when he had reached the Philippine Islands, his ships went on and completed the journey. Since then many people have made the voyage in various directions, and the earth has been studied so carefully that every one now knows it is round.

The great round earth is also called the *globe* or *sphere*.

The reason that it does not seem round to us, is that we see so little of it at a time.

If you see very little of an orange, it will not look round either. To prove this, place upon an orange a piece of paper with a small hole in it, so that none of the surface is seen excepting that which shows through the hole. This part does not appear round, but flat.

If we could get far enough away from the earth to see a large part of it at once, as we are when looking at an orange, or at the moon, we would easily be able to observe its roundness (Fig. 2).

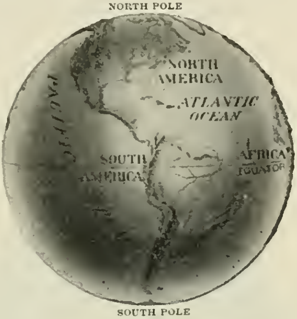


FIG. 2.

The sphere.

Size of the Earth. — Our sphere is so large that even the highest mountains, when compared to the whole earth, are no larger than a speck of dust when compared to an apple. Lofty mountains are rarely more than three or four miles high ; but the *diameter* of the earth, or the distance from one side to the other, through the *centre of the earth*, is nearly eight thousand miles.

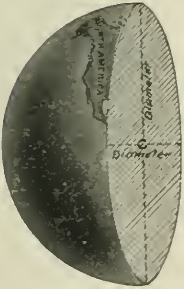


FIG. 3.

Figure of the earth cut in two, to show the diameter, the line passing through the centre (c).

The *circumference* of the earth, or the distance around the outside of it, is about twenty-five thousand miles. This is a little more than three times the diameter, and you will find that the circumference of any sphere is always a little more than three times its diameter. Prove this with an orange.

II. MOTIONS OF THE EARTH, AND THEIR RESULTS

The Axis and Poles. — The earth seems to us to be motionless, while *the sun appears to move* round it each day, rising in the east and setting in the west. But in reality neither of these things happens.

Instead of being without motion, the earth is whirling round with tremendous speed. You have perhaps watched a wheel spin about upon a rod or pin, and have noticed that the outside goes rapidly, while the part near the pin moves much more slowly. It is the same with the earth ; and just as we speak of the wheel turning upon a pin, so we speak of the earth turning upon its *axis*.

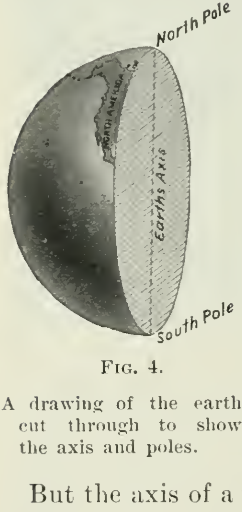


Fig. 4.

A drawing of the earth cut through to show the axis and poles.

But the axis of a wheel is something real, while the axis of the earth is merely *a line that we think of* as reaching through the earth's centre and extending to the surface in both directions.

The two ends of this axis are called the *poles of the earth*, one end being the *north pole*, the other the *south pole*.

Allowing an apple to represent the earth, a knitting needle or a stick pushed through its centre would represent its axis, and the two ends on the surface, the two poles. You can then spin the apple, very much as the earth spins (Fig. 6).

If you were to go directly north from the place where you live, you would in time come to the north pole; or, if far enough south, to the south pole. Many men have tried to cross the icy seas (Fig. 9) that surround the north pole. If one ever reaches that point, he will not find a projection; but the north star, toward which the axis points, will be almost directly overhead.

The Equator. — Midway between these poles, we think of another line drawn around the earth on the outside. This is called the *equator*, because all parts of it are *equally* distant from each of the poles. On page 3 the distance around the earth was given; what, then, is the length of the equator?

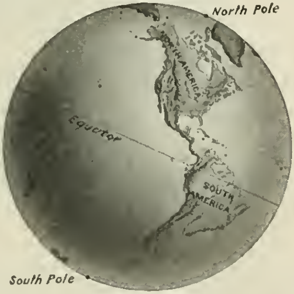


FIG. 5.

That half of the sphere containing the New World, to show the position of the poles and the equator.

As the earth spins on its axis, all points on the surface must go with it, as every part of the skin of an apple turns with it. Since the earth makes one complete turn each day, a man at the equator travels twenty-five thousand miles every twenty-four hours. What a whirling motion that is! It is at the rate of over one thousand miles an hour, while the fastest trains run little more than sixty miles an hour.

Why do not places considerably north or south of the equator move as rapidly as those at the equator?

Gravity. — What, then, is to hinder our flying away from the earth, just as, when a stone is whirled about on a string, it flies away the moment the string breaks? And why is not all the water hurled from the ocean?

The reason is that the earth draws everything toward it. If you push a book from your desk, it falls to the floor; and when you spring into the air, you quickly return to the ground. All objects are drawn *downward*, because the earth is pulling upon them. It attracts them much as a horse-shoe magnet attracts pieces of iron.

The force with which the earth draws all objects toward it is called *gravity;* and it is because of gravity that the water, trees, houses, and we ourselves, do not fly off when the earth is turning at such a tremendous speed.

Sunrise and Sunset. — The sun *seems* to rise in the east and set in the west. This could not be the case if the earth did not turn or *rotate* toward the east; for all heavenly bodies must first appear in the direction toward which the earth turns. This eastward rotation of the earth, therefore, explains why the sun seems to rise and set as it does.

Hundreds of years ago people thought that the sun actually rose, and, after moving across the heavens, set in the west. We still use the words "sunrise" and "sunset" which they used, although we know that the sun *appears* to rise only because the earth rotates.

Day and Night. — It is this rotation that causes day and night. A lamp can light only one-half of a ball at a time, as you know. So the sun can light only half of the great earth ball at one time. That being the case, if our globe stood perfectly still, there would always be day on the half next to the sun, and night on the other half.

But since the earth rotates, the place where it is day is constantly changing; and while the sun is setting for people far to the east of us, it is rising for those far to the west. When it is noon where you live, it is midnight on the other side of the earth. Thus each place has its period of daylight and darkness; and as the earth makes one complete rotation every twenty-four hours, the day and night together must last just that length of time.

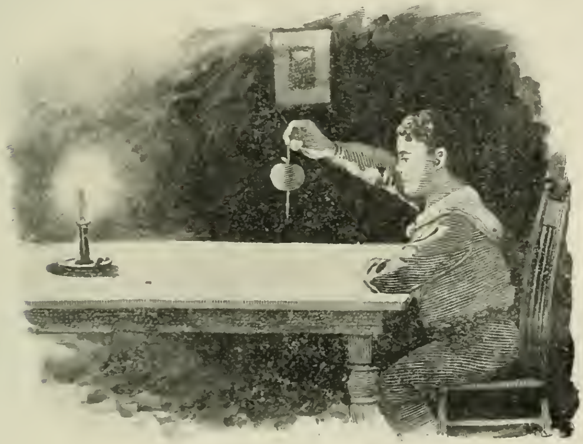


FIG. 6.

An apple lighted by a candle on one side, to illustrate the cause of day and night.

Yearly Motion of the Earth: Inclination of the Earth's Axis: Results. — Our summer months are June, July, and August. In September the weather is often hot, but the days are noticeably shorter and the nights longer. In October and November the shortening of the days continues, the weather is often stormy, and there is a further gradual lowering of the temperature. These three months form our autumn, or fall. (Suggest a reason for the name, "Fall.") In the winter months of December, January, and February, you need scarcely be told that the average temperature is very low, and that the days are exceedingly short. With March — the first month of spring — comes a change. By April the snow has vanished, the early flowers have appeared, and the lengthening days are cheered by the notes of the returning birds. In May the trees put on their leaves, and spring passes into early summer.

Thus we have the following changes: a warm period followed by one of gradually decreasing temperature; this by a period of continued cold, and the latter by a period of gradually rising temperature. These periods we call the Seasons, and we have now to inquire what causes produce these results.

We have just learned, Chapter II, that the whirling of the earth on its axis causes day and night. If the earth, like the apple in Figure 6, were to remain always in the same place and merely rotate on its axis, you will easily see that we could not have the great changes which we call the Seasons. One day would be just like every other day.

We must now learn two other very important facts about the earth, which will help us to answer our inquiry.

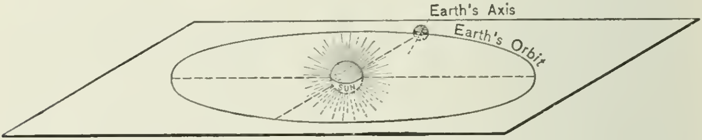


FIG. 6 A.

To illustrate the inclination of the earth's axis to the plane of its orbit.

The first fact is that the earth does not always stay in the same place, but is rapidly changing its position. *It moves around the sun.* Its path around the sun, called the earth's *orbit* (Fig. 6 A), is not quite a circle, but we need not consider this just now. As the earth is about 92 millions of miles from the sun, the diameter of the earth's orbit will be twice 92 millions of miles. Now you have learned in Chapter I that the circumference of a circle is a little more than three times its diameter, so that to make one trip around the sun the earth must travel over 552 millions of miles. Yet it does this in a little more than 365 of our days, and this period of time we call one *year*.

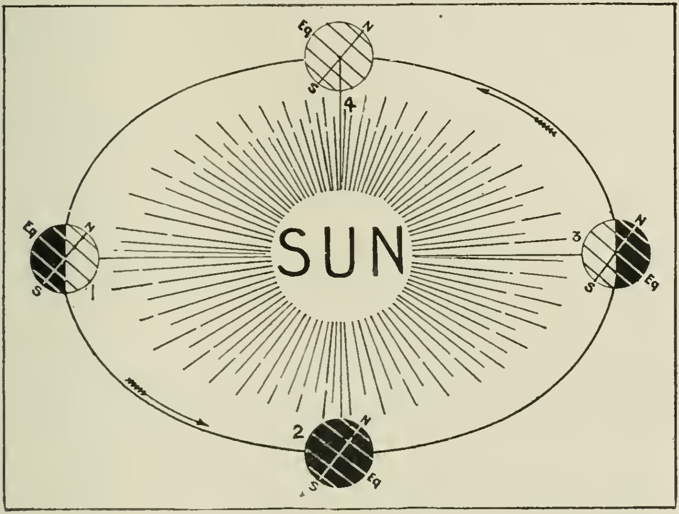


FIG. 6 B.

If the boy (Fig. 6) were to hold the apple at the same level, keep spinning it on its axis, and were to walk around the candle, always keeping the same distance from the light, we would not observe anything different from that represented in the picture. Try it. But suppose the boy were to tilt the apple so that its axis slants slightly, you would observe that now the light extends a short distance beyond one end of the axis and does not reach the other end. Now let him keep the axis always at the *same* slant, and walk around the light again, in all other respects just as before, and let him note very carefully the points on the apple reached by the light at each *quarter* of the trip around. Try the experiment carefully and then compare your results with Fig. 6 B.

You have already seen that the candle can illuminate only one half of the apple at any one instant no matter where the apple may be in its path. When the axis is tilted and in position 1 (Fig. 6 B), you see that the light extends beyond N (one end of the axis), and does not reach S (the other end). In position 2 the light just reaches both N and S. In position 3, keeping always the same slant, you observe that the light does not reach N, but extends beyond S. In position 4 there is the same appearance as in 2.

We are now ready for the second fact about the earth to which we have already referred. The axis of the earth is inclined much like that of the apple in the last experiment. Figure 6 A illustrates this also. The slant of the earth's axis to the plane passing through the earth's orbit is called the *inclination* of its axis, and this inclination changes so very little that we may consider it always the same.

Since the earth is moving around the sun, you will see that there is a position 1 (Fig. 6 B) in which the heat and light from the sun will fall almost directly upon the more northerly parts of the earth. This is the position of our earth during our mid-summer, for you will remember that we live quite a distance north of the equator (Eq. Fig. 6 B). Suppose the earth to travel in the direction indicated by the arrows, then in position 2 (Fig. 6 B) the rays from the sun fall directly on the equator and just reach the north and south poles. As a result, the temperature of the northerly parts of the earth will be gradually becoming lower. In position 2 we have our mid-autumn. When position 3 is reached the light and heat rays not only do not reach N, but they strike the northerly parts obliquely, and so do not produce as much effect as when they strike directly. This position of the earth gives us our mid-winter, and you will also notice that it is the mid-summer period for those living south of the equator. As the earth passes to position 4 the rays begin to fall more nearly vertically upon the northerly parts, and we have a rising temperature. This is our mid-spring. Thus you learn that while "day" and "night" are produced by simple rotation of the earth, in order to have the "seasons" two conditions are necessary, namely: (1) the axis of the earth must be inclined, and (2) the earth must *revolve* around the sun.

LATITUDE AND LONGITUDE

The *amount* of inclination of the earth's axis has not been stated, but you have discovered that it is a matter of very great importance.

In considering the amount, it is necessary to speak of angles. Angles may be measured by the use of circles. A right angle, for instance, is one that includes one-fourth of a circle between its sides. It is customary to divide circles into parts, or *degrees* (indicated by the sign °), the number chosen being 360, a number which is exactly divisible by numerous other numbers, as 2, 3, 4, 5, 6, 8, 9, 10, 12, etc. Since a right angle includes one-fourth of a circle, it contains one-fourth of 360°, or 90°; and an angle that is one-half as large as a right angle contains 45°. By drawing lines from the centre of a circle to its circumference, construct an angle of 90°; and others of 120°, 45°, and $22\frac{1}{2}$°.

The angle in Figure 6 C is $23\frac{1}{2}$°, and shows just how far the axis (Fig. 6 A–6 B) should be inclined. Hold your pencil perpendicular to the top of the table; now tilt it about 23½°. That is the position of the earth's axis with reference to the plane of its orbit, and year after year it remains at that angle.

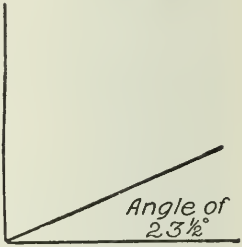


Fig. 6 C.

An angle of 23½° drawn in a right angle.

This is the reason why the tropics and polar circles are situated just where they are. On June 21, when the north pole is turned toward the sun, the vertical rays fall 23½° north of the equator, because the axis is inclined that amount. On that account the Tropic of Cancer lies 23½° north of the equator. At this date, also, the sunlight reaches the same number of degrees beyond the north pole, and therefore the Arctic Circle is located 23½° from the pole.

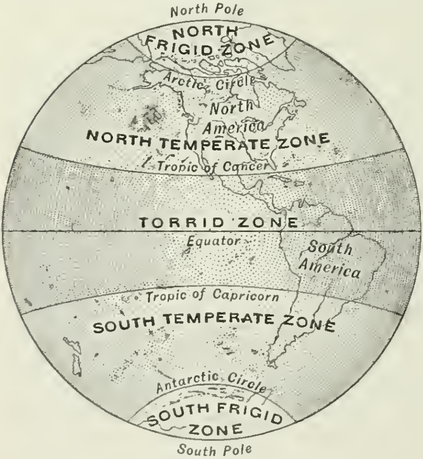


Fig. 6 D.

A map of the zones. Make a drawing similar to this.

On December 21 the earth's revolution has caused the north pole to turn away from the sun, and the vertical rays then fall 23½° south of the equator, while the sunlight reaches the same distance beyond the south pole. Thus the Tropic of Capricorn and the Antarctic Circle are located. It is plain, therefore, that the inclination of the earth's axis determines the exact boundaries of the zones.

To aid in locating cities, lakes, and other points on the earth's surface, two sets of circles are used, one extending east and west, the other north and south. When maps of any part of the earth's surface are made, these circles are drawn on them. In a study of the earth they are of much the same advantage as the names and numbers of streets when one is finding his way in a large city.

Latitude. — The circles which are extended around the globe in east and west directions are called *circles of latitude* (Fig. 6 E). The two tropics and the Arctic and Antarctic circles are examples, and there are many others. In order that they may be of use they must be numbered. Accordingly, the *equator*, or the circle which is midway between the poles, is called 0° latitude. All circles north of this, that is, all in the northern hemisphere, are said to be in north latitude; all south of it, or in the southern hemisphere, are in south latitude. Since these circles are parallel to each other, they are often called *parallels* of latitude.

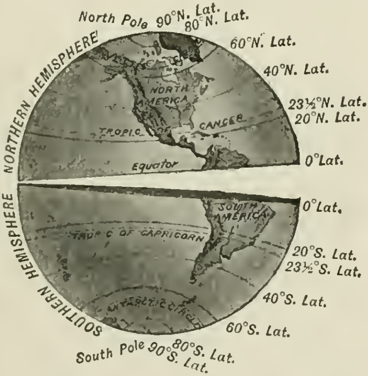


FIG. 6 E.

The globe, showing the two hemispheres, and some of the circles of latitude.

It has been said (p. 11) that a circle may be divided into 360 parts, or degrees. One-fourth of 360 is 90; and since the distance from the equator to either pole is one-fourth of that around the earth, there are just 90° from the equator to either pole. Accordingly the circles of latitude in each hemisphere are numbered from 0° at the equator to 90° at the poles. Since the circumference of the earth is about 25,000 miles, dividing that by 360 makes the length of each degree of latitude about 69 miles. Therefore latitude is merely distance from the equator.

What cities in Canada are near the fortieth parallel of north latitude? What is the latitude of New York? Of Madrid in Spain? Of Peking? Of Kimberley in South Africa? Of the Tropic of Cancer? Of the Tropic of Capricorn? Of the Arctic Circle? Of the Antarctic Circle?

Longitude. — It is evident that the distance of any place north or south of the equator can be easily found by the use of circles of latitude. But of course there must be some means of locating points in east and west directions also. This is made possible by the use of *meridians*, or circles extending northward and southward across the equator.

Notice on Figure 6 F how the meridians converge toward the poles, coming nearer and nearer together until they finally reach the poles. Since they meet at these two points, though spreading far apart at the equator, it is plain that they *cannot be parallel* (Fig. 6 F). Degrees of longitude, therefore, are not of the same length in all places. At the equator, which is 25,000 miles in length, each of the 360° is about 69 miles; but where the meridians cross the smaller Arctic Circle, the length of a degree of longitude is much less.

To number the circles of longitude, a *prime* or *zero* *meridian* must be selected from which to commence. The one most commonly chosen for this purpose is that passing through Greenwich near London. All circles of longitude east of this meridian are numbered as *east longitude* (E. Long.) until the opposite side of the earth, or meridian 180°, is reached (Fig. 6 F). All west of the Greenwich meridian, as far as 180°, are numbered as *west longitude* (W. Long.).

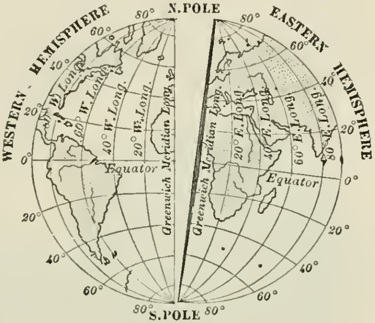


FIG. 6 F.

The earth, cut in halves along the Greenwich meridian, showing some of the meridians.

The 180th meridian is a continuation, on the other side of the earth, of the Greenwich or zero meridian, and the two together make a complete circle. Hence we may speak of *circles of longitude* as well as circles of latitude. Why must the meridian marked 180° E. Long. be the same as the one marked 180° W. Long.? Which meridian passes near Toronto? Denver? Vienna? Jerusalem?

Find the latitude and longitude of Chicago. Of New Orleans. St. Petersburg. Rome. Peking.

If a large map is made of a small part of the earth, the circles of latitude and longitude are too far apart to be of much use. Therefore, it is customary to divide each degree into sixty parts called *minutes*, just as each hour is divided into sixty parts. Each minute of latitude and longitude is divided into sixty parts called *seconds*, as each minute of time is divided into sixty seconds. The sign for a degree is °; for a minute ′; for a second ″. Thus 60 degrees, 40 minutes, and 20 seconds north latitude is marked 60° 40′ 20″ N. Lat. Examine some map of a small section to find these signs.

III. THE ZONES

Boundaries of the Zones. — The sun's rays feel warmer at noon than in the morning or evening because the sun is more nearly overhead at noon, and the rays then reach us nearly vertically.

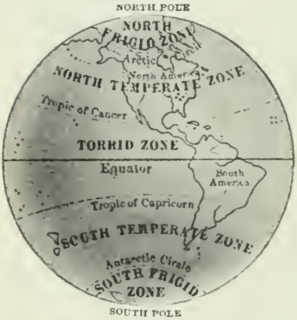


Fig. 7.

A map of the zones. The colors suggest *sharp* differences between the zones on the two sides of the boundaries; but you should remember that the changes are *very gradual.*

For the same reason the sun seems hotter in summer than in winter, and in some parts of the earth than in others.

The hottest part of the earth is near the equator, for in that region the sun at midday is directly over the heads of the people. That is the case, for a part of the year, as far north as the line on the map (Fig. 7) marked *tropic of Cancer*, and for another part of the year, as far south as the one marked *tropic of Capricorn.* Point to them on Figures 28, 29, and 30. These lines are more than three thousand miles apart, a distance nearly as great as that across the Dominion of Canada from Halifax to Vancouver; and over that vast area the heat is intense, or *torrid.* Those who live there wear only the very lightest clothing, and the savages have almost none (Fig. 8).

But farther north and south the heat becomes less and less intense, because the rays of the sun, even at noon, approach the earth at a greater slant. There is a region, then, on each side of this broad hot belt, where it is neither very hot nor very cold, but *temperate.*

Finally, near the poles, the rays are very slanting, as they are in our early morning or late afternoon. There it is so cold, or *frigid*, that the ground never thaws out, the ice never entirely disappears, and very little vegetation can grow.

Torrid Zone. — Thus one part of the earth has a hot climate. There the noonday sun is always so nearly over the heads of the inhabitants that they never have winter.

This hot region extends entirely around the earth, like a great belt, and the equator is in the middle of it. This is called the *tropical belt*, or the *tropical* or *torrid zone*, and sometimes the *equatorial belt*. Why the latter name?

FIG. 8.

Philippine savages hunting; their home is in the torrid zone, and they need almost no clothing.

Temperate Zones. — On the north and south sides of this are the two temperate zones. People living in the *north temperate zone* find the sun to the south of them at noon, even in summer; and their shadows always fall toward the north. But in the *south temperate zone* the midday sun is always in the north. Which way must the shadows fall in that zone?

Notice the position of the sun at midday where you live, and also the direction and length of your shadow at that time. In which of the temperate zones do you live?

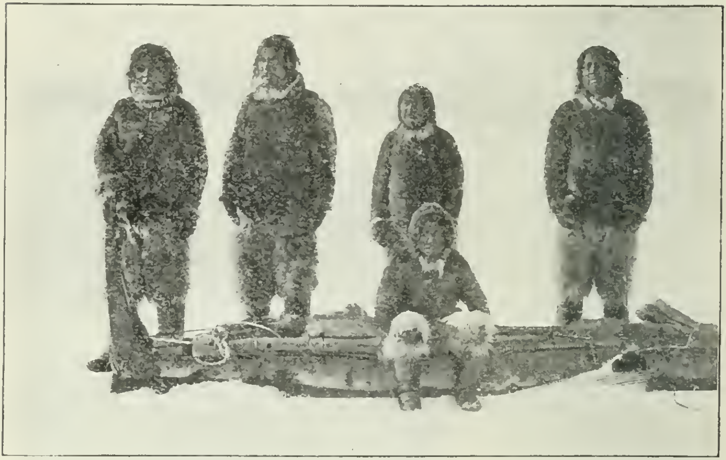


Fig. 9.

Cape York Eskimos, Greenland, in their summer dress, standing by their sleds on the ice-covered sea.

Frigid Zones. — North of the north temperate zone, and south of the south temperate, are the *frigid zones*, where the sun is never high in the heavens, but even at midday is near the *horizon*. There the shadows are very long, as they are with us in the late afternoon. In consequence, while at the equator there is never any winter, near the poles there is never any real summer weather.

The northern of these zones is called the *north frigid* *zone* (Fig. 7); the southern, the *south frigid zone*. They are also known as the *polar zones*, since they surround the poles.

It is so cold that no one has ever been able to reach either of the poles. These are surrounded by miles and miles of snow and ice, and vessels hundreds of miles away from them are in danger of being crushed by ice, or held by it so that they cannot move.

Hemispheres. — The half of our sphere north of the equator is called the *northern hemisphere* (or half sphere), the southern half, the *southern hemisphere*. The earth is also considered to be divided into halves by a circle running north and south through both poles, the western half, containing the New World, being called the *western hemisphere*, and the eastern half, containing the Old World, the *eastern hemisphere* (Fig. 2).

IV. HEAT WITHIN THE EARTH, AND ITS EFFECTS

Heat in Mines. — While much is known about the surface of the earth, very little is certain about its interior. The reason for this is that people cannot go far down below the surface in order to see what is there.

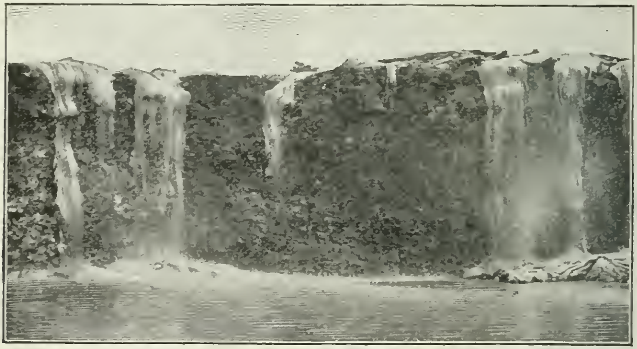


Fig. 10.

Melted rock, from a volcano in the Hawaiian Islands, flowing over the face of a precipice into the water.

In some places there are mines reaching fully a mile below the surface. This may seem a great depth; but when it is remembered that it would be necessary to go four thousand times as far to reach the centre, it is plain that this is really a short distance. A mile below the surface of the earth is not so much as the thickness of the skin of an apple, compared with the thickness of the apple itself.

In all of these mines, and in many deep wells, men find solid rock, usually covered at the surface with soil; but no one has ever gone beyond this rock.

It is interesting to note that the farther miners have dug down into the earth, the warmer they have found it. The thermometer rises about one degree for every fifty or sixty feet, and some mines, as they have been deepened, have become so hot that men could no longer work in them.

Melted Rock. — This has led to the belief that, if it were possible to go still deeper, the earth would be found to grow hotter and hotter, until, several miles below the surface, it might be hot enough to melt rocks.

Another fact leading to the same belief is that, in some regions, melted rock, called *lava*, actually flows out of the earth, and then cools to form solid rock (Fig. 10). In some places so much lava has flowed forth at different times, and collected about the opening called the *crater*, that a mountain peak has been built. Such peaks are called *volcanoes* (Fig. 11), and some of them are many thousand feet high. In Canada there are no volcanoes.

The Earth's Crust. — From a study of the earth it seems certain that, although the outside is now cold, it was once hot, and that the mass within is still hot. It may be compared to a biscuit that is still hot inside, although its crust has become cool. In fact, this cold outside part of the earth is generally called the *earth's crust*.

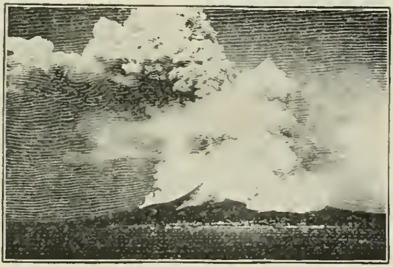


FIG. 11.

Vesuvius, in Italy, sending out lava, ashes, and steam during an eruption some years ago.

Cause of Mountains. — It was stated (Our Home, p. 18) that some parts of the earth have been raised to form mountain ranges, while others have been lowered to form valleys. We are now ready to explain how this has happened.

You have, perhaps, seen a blacksmith put a tire upon a wheel. He heats the tire so hot that it expands, and it is then easily placed over the wheel. But when the iron cools it shrinks, so that the tire then fits the wheel tightly

The hot interior of the earth is undergoing a similar change to that of the iron tire cooling, since every year it is slowly growing cooler, and, therefore, shrinking or *contracting.* This allows the cool crust to settle; but, being too large, it wrinkles, or puckers, causing the rocks to bend and break, and forming great mountain ranges and valleys.

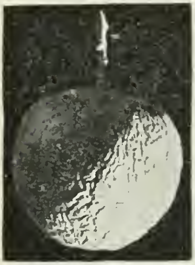


Fig. 12.

An apple wrinkled through drying.

One sees something of the same kind in an apple that has become dry and wrinkled (Fig. 12). It has dried because some of the water beneath the tough skin has gone into the air as vapor; but notice that while the apple shrinks because it loses *matter*, the earth shrinks because in cooling its particles draw closer together.

Cause of Continents and Ocean Basins. — The mountains and valleys are not the largest wrinkles on the earth's surface. As the crust has settled, some portions have been lowered thousands of feet farther than others, and in these great depressions the waters have collected, forming the *oceans*, which in places are four or five miles deep.

Those great portions of earth's crust which rise above the ocean are called *continents;* and the highest mountain peak upon them is fully eleven miles above the deepest part of the ocean.

Change in the Level of the Land. — The contracting of the earth has caused many changes, and is still causing many. Some parts of the land have risen out of the ocean, and other parts have sunk beneath it. Perhaps the place where you live, even though it be among the mountains, was once below the ocean. This can be proved, in some places, by finding certain shells, called *fossils*, in the rocks.

Ages ago these shells were parts of animals living in the ocean; but on the death of their owners they became buried in the mud and lay there for many centuries until the layers of mud became slowly hardened into rock. This was later lifted above the water, and then frost, rain, and rivers wore the upper layers away, bringing the fossils to light.

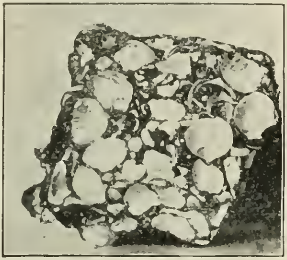


FIG. 13.

A rock containing many fossil shells.

We have already seen (Our Home, p. 2) how rock is changing to soil and being washed from the land into the ocean. We now learn that this settles upon the ocean bottom, hardens into rock, and then, perhaps, is lifted into the air. These changes are very slow, but they are going on all the time. Places once inhabited by men are now beneath the sea, and others where they now live have risen above it.

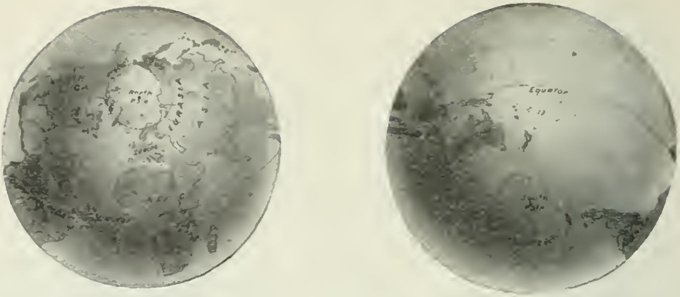


Fig. 14. — Land (on left-hand side) and water (on right-hand side) hemispheres. *Hemisphere* means half-sphere; that is, half the earth.

V. THE CONTINENTS AND OCEANS

Land and Water. — The greater part of the land is found in the northern hemisphere, the greater part of the water in the southern (Figs. 15 and 21).

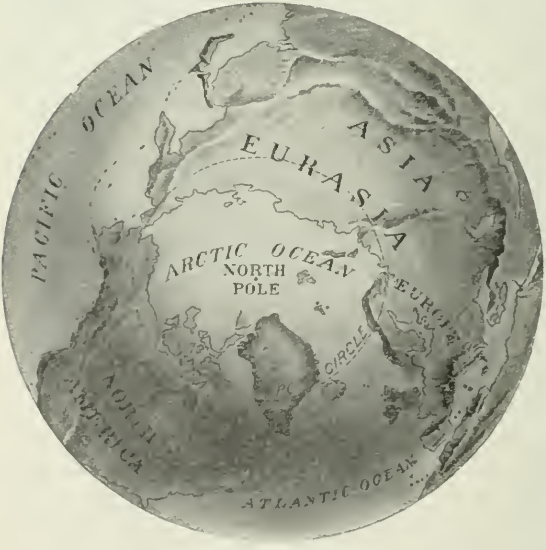


Fig. 15. — The northern hemisphere, showing the land about the north pole, Eurasia in the eastern hemisphere, and America in the western.

It is possible to divide the earth into halves, in one of which — the *land hemisphere* — nearly all the land is situated, while in the other — the *water hemisphere* — there is very little land. This is shown in Figure 14.

THE CONTINENTS

In Figure 15, or, better, on a globe, notice that two great masses of land extend from the north polar zone. One of these lies in the western hemisphere, and is the land on which we live; the other is in the eastern hemisphere.

North America. — The western land, which is better shown in Figure 16, is broad near the north pole, and tapers nearly to a point just north of the equator, having the general form of a triangle. What is the name of this part?

Show where Ottawa, Halifax, and Victoria should be on this map. (See the map, Fig. 30.) Point also to your home. Find some rivers, mountains, peninsulas, gulfs, and other forms of land and water.

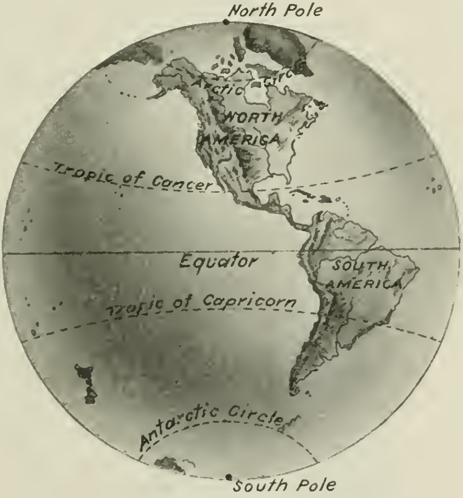


FIG. 16.

The half of the sphere containing the New World.

South America. — South of North America, and connected with it by a long neck of land, the Isthmus of Panama, lies the continent of *South America.* The two continents are called the two Americas, forming the New World which Columbus discovered (p. 2). Notice how much alike they are in shape; draw triangles to show this.

Through what zones does North America extend? (See Fig. 7, p. 8.) South America? Point to the places where there is snow all the time; to the part where there is never any snow. Where must the Eskimo girl, Agoonack, in the story of the Seven Little Sisters, have lived? Read about the Eskimos on page 10.

Tell how the climate would change if you were to travel from the northern end of North America to the southern end of South America. What changes would you expect to find in the plants? In the clothing of people? Write a story about such a journey.

On the opposite page are pictures of some of the wild animals of South America (Fig. 18). What wild animals live in North America? Collect pictures of them (Fig. 110, etc.). Have you ever seen any of them?

Eurasia. — East of us, across the Atlantic Ocean, is the Old World (Figs. 17 and 22). More land is found there

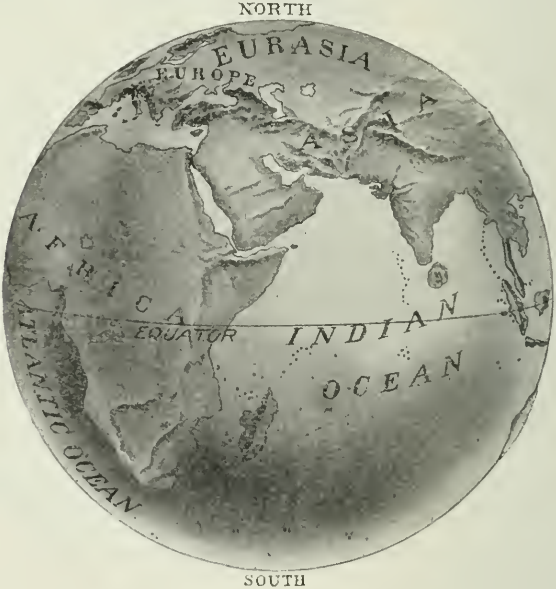


Fig. 17. — A hemisphere showing a part of Eurasia and Africa.

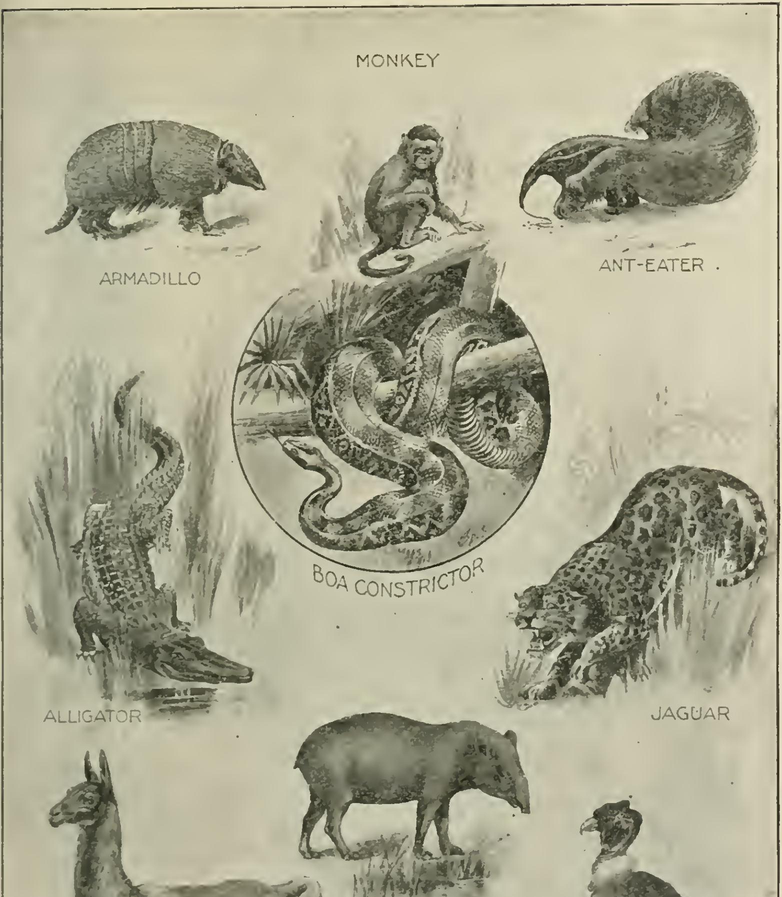


Fig. 18.

Some of the animals of South America.

than in the New World, and the largest mass of it is sometimes called *Eurasia.*

The northern part of Eurasia is in the North Frigid zone, on the opposite side of the north pole from North America (Fig. 15), and extends a great distance east and west. Find for yourself how far south this continent reaches, and through what zones it passes.

Long ago, before Columbus made his voyage to the New World, the most civilized people lived in *Europe*, the western part of this great continent.

The homes of Jeannette and Louise, two of the Seven Little Sisters, were in that country. If you have read the story, can you not tell some things about each of them?

FIG. 19.

The home of Jeannette among the Swiss mountains. Find other pictures of these mountains in Our Home, pages 17 and 22.

The eastern part of the continent is called *Asia.*

Read in the "Seven Little Sisters" about Gemila, the child of the desert, and of Pen-se, the Chinese girl, whose homes were in Asia.

Europe is usually considered one continent and Asia another, although, as you can see from the maps, especially Figure 15, they are not so clearly separated as the other continents are. For this reason Europe and Asia are often called one continent, Eurasia, the name being made up of "Eur," from Europe, and "Asia."

Point toward this continent. Walk toward it. Which is probably its warmest part?

Africa. — South of Europe is the continent of Africa.

Here lived the little dark girl, Manenko, one of the Seven Little Sisters, and this is the place the negroes came from.

FIG. 20.

The tiger, one of the wild animals of Africa and Asia.

In what zones does Africa lie? How does it compare with South America in temperature? In shape? In what direction would you start in order to go directly to Africa?

Australia. — South of Asia are many large islands called the East India Islands (Fig. 30). Find the zone in which they lie. Southeast of these is a large island known as the continent of *Australia* (Fig. 29). In what zones is it?

THE OCEANS

The Arctic and Antarctic. — There seems to be a great deal of land; but, as we have learned (Our Home, p. 60), three-fourths of the earth is covered by ocean water. The water around the north pole (Fig. 15) is called the *Arctic Ocean.* Find it on a globe.

There are many islands in this ocean, and the water between them is covered with ice. The climate is so cold that there are very few people, and no crops of any kind can be grown. Here the Eskimos live hunting the polar bear, seal, and walrus to obtain meat for food, fur for clothing, and oil for fuel and light (see p. 102).

Much less is known about the *Antarctic Ocean* (Fig. 21), which surrounds the south pole, and on which there is also a great deal of floating ice.

The Atlantic. — Extending from the Arctic to the Antarctic is the *Atlantic Ocean* (Fig. 22), having the Old World on the east and the New World on the west. This is the water that we cross in going to Europe, and many of the things we eat and wear are brought across it. Can you name some of them? Find what continents the Atlantic borders.

The Pacific. — The water west of North America is called the *Pacific Ocean* (Fig. 23), which is the largest of all oceans, covering more than one-third of the earth's surface. What continents does it bathe? Walk toward it.

The Indian. — There is still another great body of water called the *Indian Ocean* (Fig. 17). It lies south of India in Asia, and between Africa on one side and Australia and the East Indies on the other.

The Ocean Bottom. — The depth of the ocean water varies considerably; on the average it is a little over two

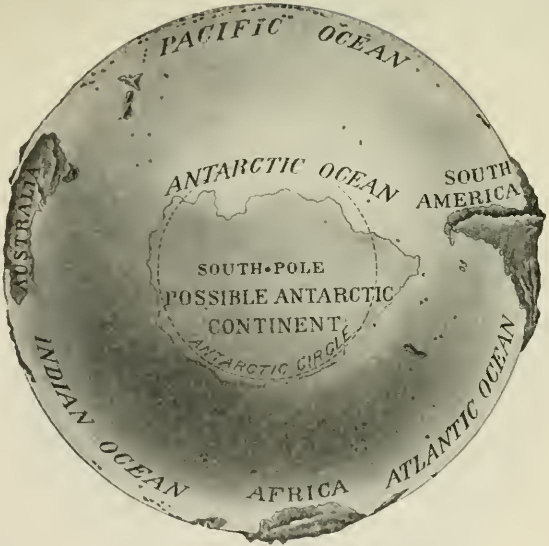


FIG. 21.

The southern hemisphere, showing the water surrounding the south pole. Notice that the Antarctic is not separated by land from the other oceans.

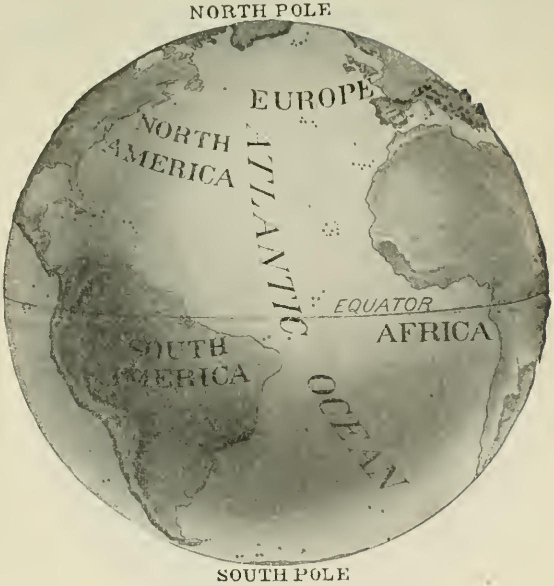


FIG. 22.

The Atlantic Ocean.

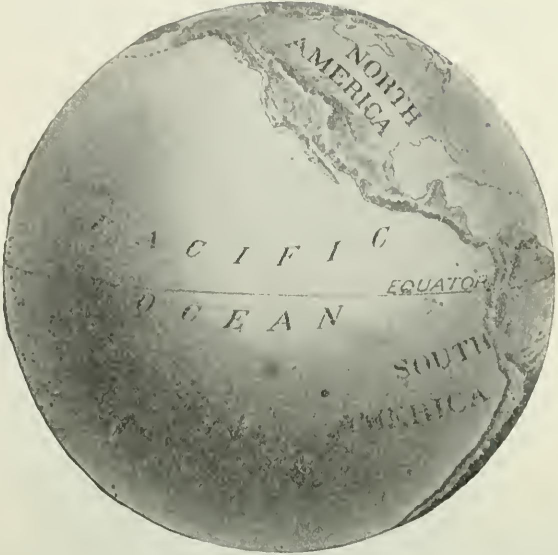


Fig. 23.

The eastern part of the Pacific Ocean.

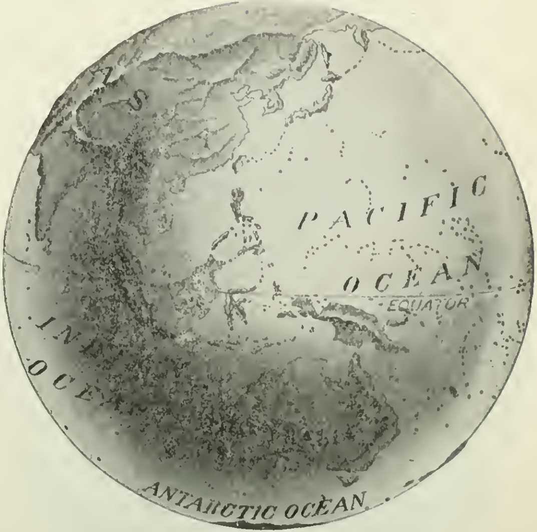


Fig. 24.

A part of the globe. What continents and oceans are shown?

miles, but in some places it is more than five miles deep. In this immense body of water are millions of animals, some of them, as the whale, shark, codfish, and seal, being of use to man.

The bed of the ocean is mainly a great plain, where it is as dark as our darkest night, because the sunlight cannot pass through so much water. In consequence, the fish living there have little use for eyes, and some have none.

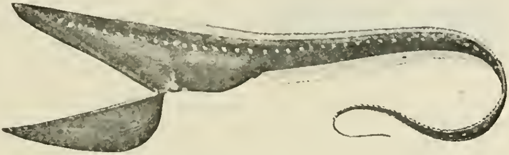


FIG. 25.
One of the deep-sea fish.

The mud which covers the bottom is in many places made up of the shells of tiny animals, many of them even smaller than a pinhead. Some of the chalk formerly used in schools was just such mud before it was raised to form rock layers on the dry land.

Mountains in the Oceans. — While most of the bottom of the sea is a plain, some parts are not so level. Here and there are mountain peaks, and chains of islands, extending above the sea far away from the continents. Many of these are portions of mountain chains rising above the water; but many, like the Hawaiian Islands, are volcanoes which have been built up by lava flowing from the interior of the earth.

FIG. 26.
A piece of coral, with the polyps projecting from the hard coral like a bunch of flowers. See also Fig. 237.

Coral Islands. — In the open ocean there is another interesting kind of island known as the *coral island* (Figs. 27 and 237). Some very tiny creatures, called *coral polyps*, build hard, limy coral, such as you have no doubt seen. Where the ocean water is warm, as in the torrid zone, these little animals live in immense numbers, millions of them around a single island.

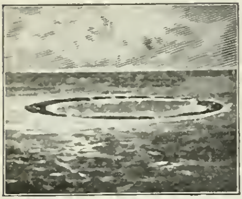


Fig. 27.

A ring-like coral island, called an *atoll*, in the open ocean.

Each polyp resembles a fully blossomed flower; and they vary greatly in color, being white, pink, purple, red, yellow, brown, and many other colors. It is a truly beautiful sight to see them spread out in the water, looking like a flower garden in the sea (Fig. 26).

When these coral animals die, the hard coral part remains. Then other polyps build upon these skeletons, and this is continued until the surface of the water is reached and coral islands are formed.

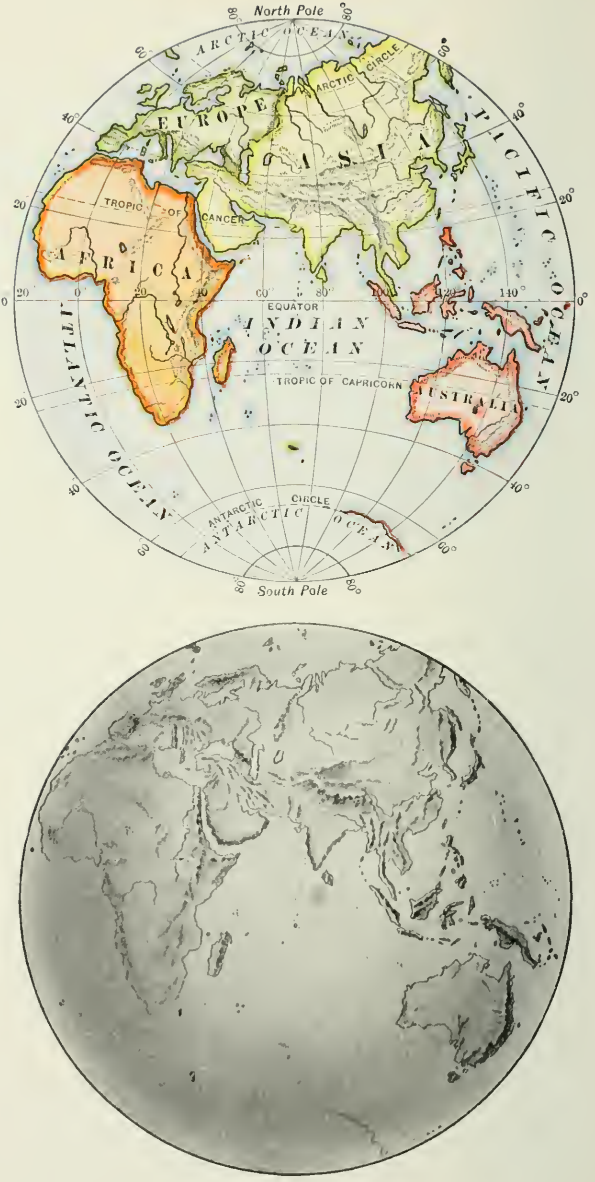

North Pole
ARCTIC OCEAN
ARCTIC CIRCLE
EUROPE
ASIA
PACIFIC OCEAN
TROPIC OF CANCER
AFRICA
EQUATOR
INDIAN OCEAN
ATLANTIC OCEAN
TROPIC OF CAPRICORN
AUSTRALIA
ANTARCTIC CIRCLE
ANTARCTIC OCEAN
South Pole
80°
60°
40°
20°
0°
20
0
60°
80°
100
120
140°

Fig. 29

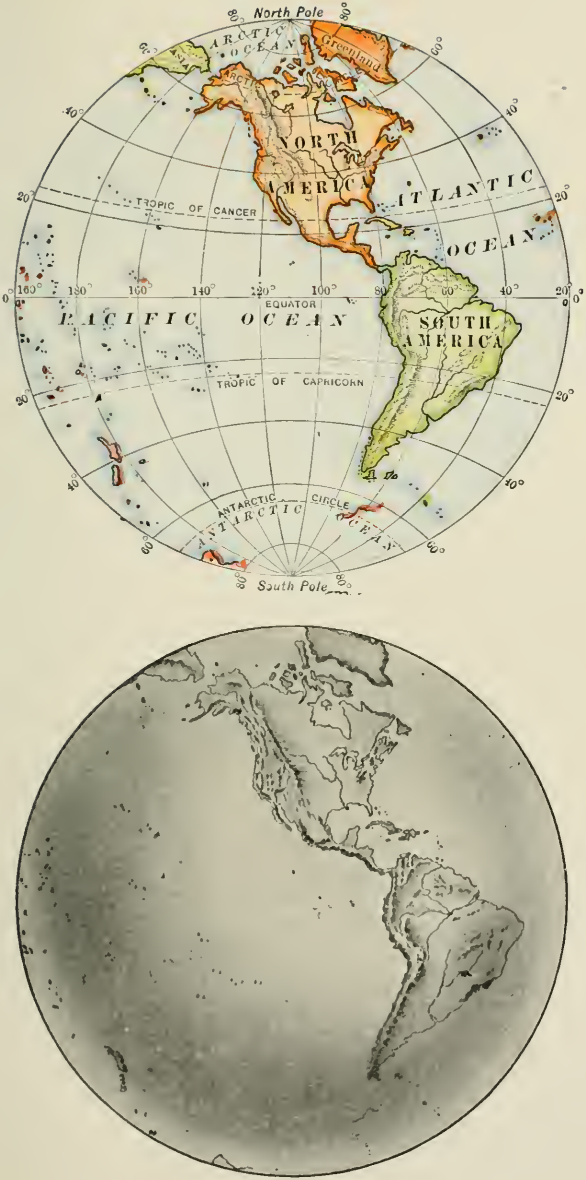

North Pole
80°
80°
ARCTIC OCEAN
ASIA
Greenland
ARCTIC
60°
60°
40°
40°
NORTH AMERICA
ATLANTIC OCEAN
20°
20°
TROPIC OF CANCER
0
0°
160°
180°
160°
140°
120°
100°
80°
60°
40°
20°
EQUATOR
PACIFIC OCEAN
SOUTH AMERICA
TROPIC OF CAPRICORN
20°
20°
40°
40°
ANTARCTIC CIRCLE
ANTARCTIC OCEAN
60°
60°
80°
80°
South Pole

Fig. 28

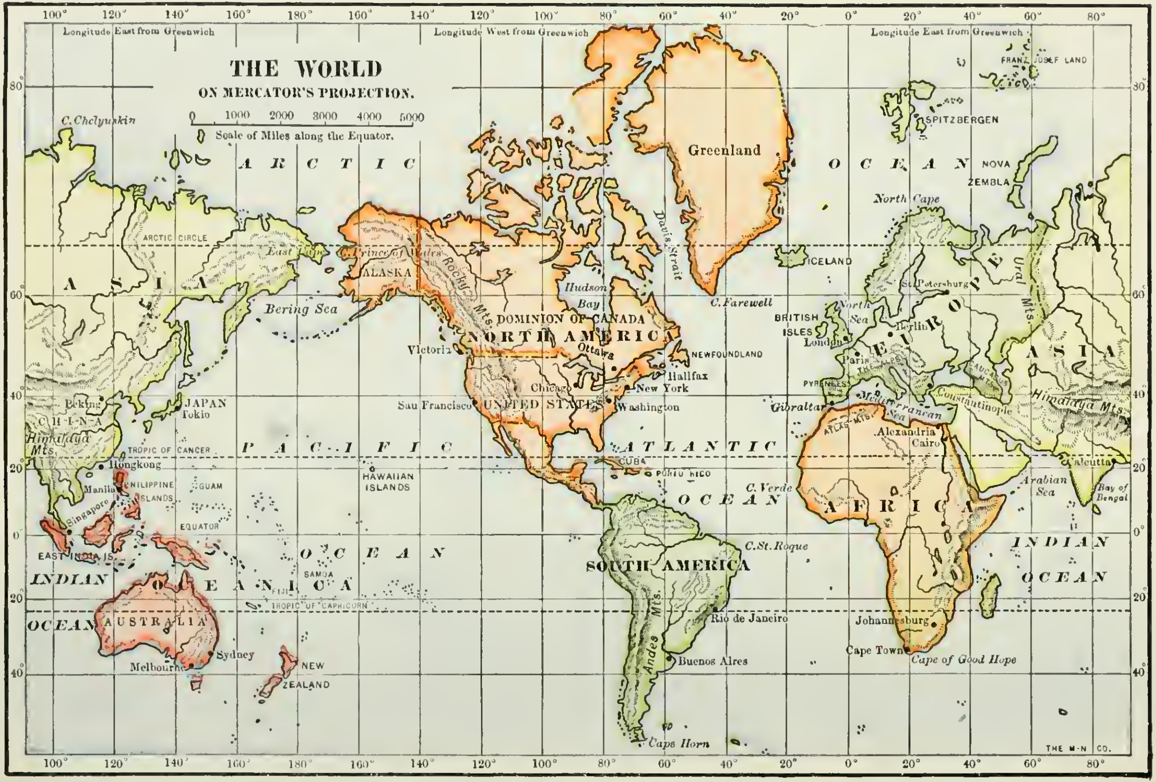

THE WORLD
ON MERCATOR'S PROJECTION.
0 1000 2000 3000 4000 5000
Scale of Miles along the Equator.
Longitude East from Greenwich
Longitude West from Greenwich
Longitude East from Greenwich
100° 120° 140° 160° 180° 160° 140° 120° 100° 80° 60° 40° 20° 0° 20° 40° 60° 80°
80° 60° 40° 20° 0° 20° 40°
C. Chelyuskin
ARCTIC OCEAN
ARCTIC CIRCLE
Greenland
FRANZ JOSEF LAND
SPITZBERGEN
NOVA ZEMBLA
North Cape
ICELAND
ASIA
East Cape
C. Prince of Wales
ALASKA
Rocky Mts.
Bering Sea
Davis Strait
Hudson Bay
C. Farewell
DOMINION OF CANADA
NORTH AMERICA
Victoria
Ottawa
NEWFOUNDLAND
Halifax
New York
Chicago
San Francisco
UNITED STATES
Washington
BRITISH ISLES
North Sea
London
Paris
THE ALPS
PYRENEES
EUROPE
St. Petersburg
Berlin
Ural Mts.
CAUCASUS MTS.
Constantinople
Mediterranean Sea
Gibraltar
ATLAS MTS.
Alexandria
Cairo
Himalaya Mts.
Calcutta
Arabian Sea
Bay of Bengal
Peking
CHINA
Himalaya Mts.
JAPAN
Tokio
TROPIC OF CANCER
Hongkong
Manila
PHILIPPINE ISLANDS
GUAM
Singapore
EQUATOR
EAST INDIA IS.
PACIFIC OCEAN
HAWAIIAN ISLANDS
ATLANTIC OCEAN
CUBA
PORTO RICO
C. Verde
AFRICA
C. St. Roque
SOUTH AMERICA
Rio de Janeiro
Andes Mts.
Buenos Aires
Caps Horn
Johannesburg
Cape Town
Cape of Good Hope
INDIAN OCEAN
OCEANICA
SAMOA
FIJI
TROPIC OF CAPRICORN
INDIAN OCEAN
AUSTRALIA
Sydney
Melbourne
NEW ZEALAND
THE M-N CO.

Fig. 30

VI. MAPS

THE maps that have been thus far used represent hemispheres, and show the earth in relief, as it would appear if we looked down upon it from above. Such maps are especially desirable because they call attention to the roundness of the earth ; but they are so difficult to make that it is customary to represent the earth on flat maps instead.

In Figures 28 and 29 you can see the difference between the two. While the lower ones, by the shading, show the roundness of the earth, the upper two represent it as quite flat. Although they are unlike, the latter show the position of the land and the water quite as plainly as the former. Since this is true, and since it is much easier to make the flat maps, these will be the ones chiefly used hereafter in this book. But in studying flat maps one should always remember to think of the earth as round, and not as a flat surface.[1] Examine Figure 30 also.[2]

---

[1] The teacher should see that this is done by frequent use of a globe. It is advisable to have one large globe and several small ones, so that each pupil may have one for frequent use.

[2] These maps (Figs. 28, 29, and 30) should be carefully studied, the pupil following map questions given by the teacher to cover form, location, etc., of continents, oceans, and important places.

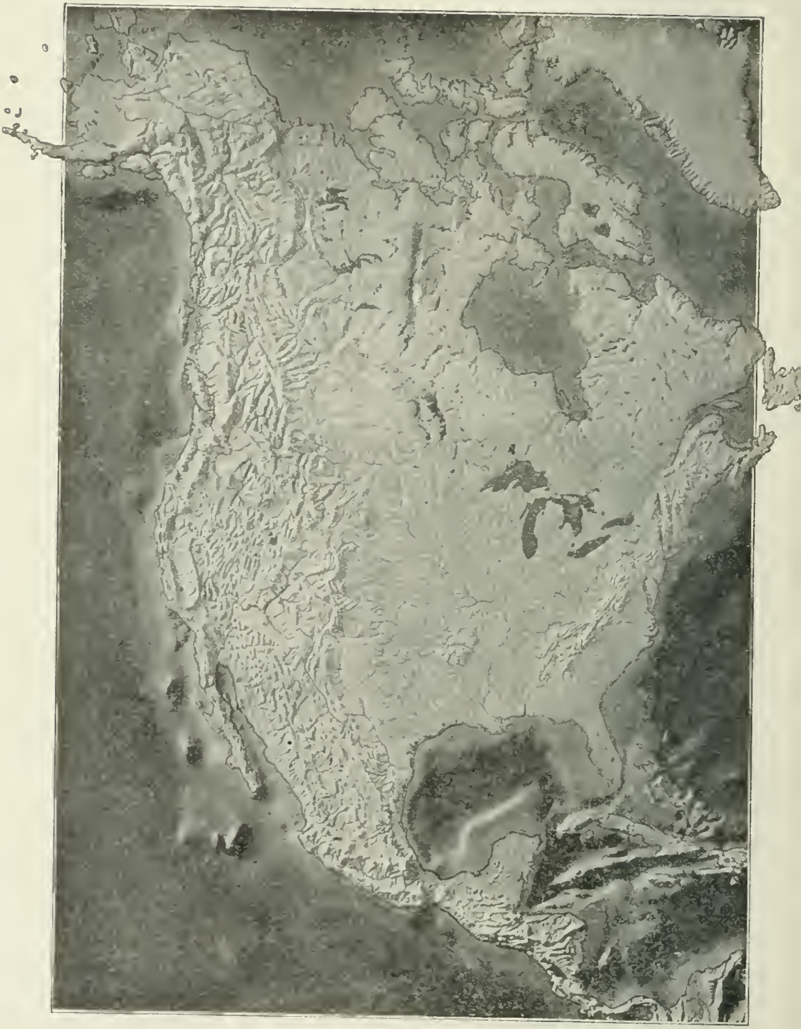


FIG. 32.

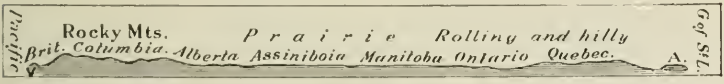
Relief map of North America.

(Modelled by E. E. Howell.)

VII. NORTH AMERICA

Physical Geography. — Figure 32 is a relief map of the continent on which we live. What great highland do you find in the west? In the east? In what direction does each extend? Which is the broader and higher? Where is the lowest land between these two highlands? Trace the St. Lawrence River and Great Lakes; the Mississippi River. Name some of the largest tributaries of the Mississippi River. (You will find these names on the map, Fig. 31.) Find the Rio Grande River in the south; the Mackenzie and the Yukon in the northwest. What two great rivers flow westward from the Rocky Mountains to the Pacific Ocean?

Notice the slope east of the Appalachian Mountains. Is it longer or shorter than that west of the Rockies? What, then, are the main slopes in North America? Upon which of these slopes do you live? Point as nearly as you can to the place where your home is.



Section from Vancouver I. to Anticosti I to show comparatively the extent of level and highest lands.

FIG. 33.

Find Halifax and Victoria on Figure 31. If you were to go westward from the former to the latter, you would travel over many hills, valleys, and mountains. Some of the slopes would be short and gentle; others would be very long, and sometimes gentle, sometimes steep. Here is a drawing showing the chief slopes you would cross in making that journey. Trace on the map the various slopes of the drawing. Draw a section like this.

Political Divisions. — You will remember that Spain was the nation that helped Columbus to make his discovery of America. The Spaniards afterwards settled in the southern part of the continent, and introduced the Spanish language there. This is still the chief language spoken in MEXICO and in the southern part of North America. Mexico became independent of Spain many years ago.

Other nations also sent out explorers and made settlements. Among them were the British and French, who settled chiefly along the Atlantic coast, the French occupying the northern part of the country, and the British the central portion between the French and the Spaniards. In course of time the British came to own the whole of the continent north of Mexico.

Many of the British in the central portion of eastern North America became dissatisfied with the manner of their government by the mother country. On the fourth of July, 1776, they declared their independence of Great Britain, and after a severe struggle they won it completely. This part became known as the UNITED STATES OF NORTH AMERICA. Britain, however, still retained the northern part of the continent, then, as now, called CANADA, in which we have our homes. Find each of these countries in the map. (Fig. 31.)

Besides these three large nations, several smaller ones occupy CENTRAL AMERICA, which lies south of Mexico.

Of course there must be some place where one country ends and another begins. Such a place is called a *boundary*, and the boundary

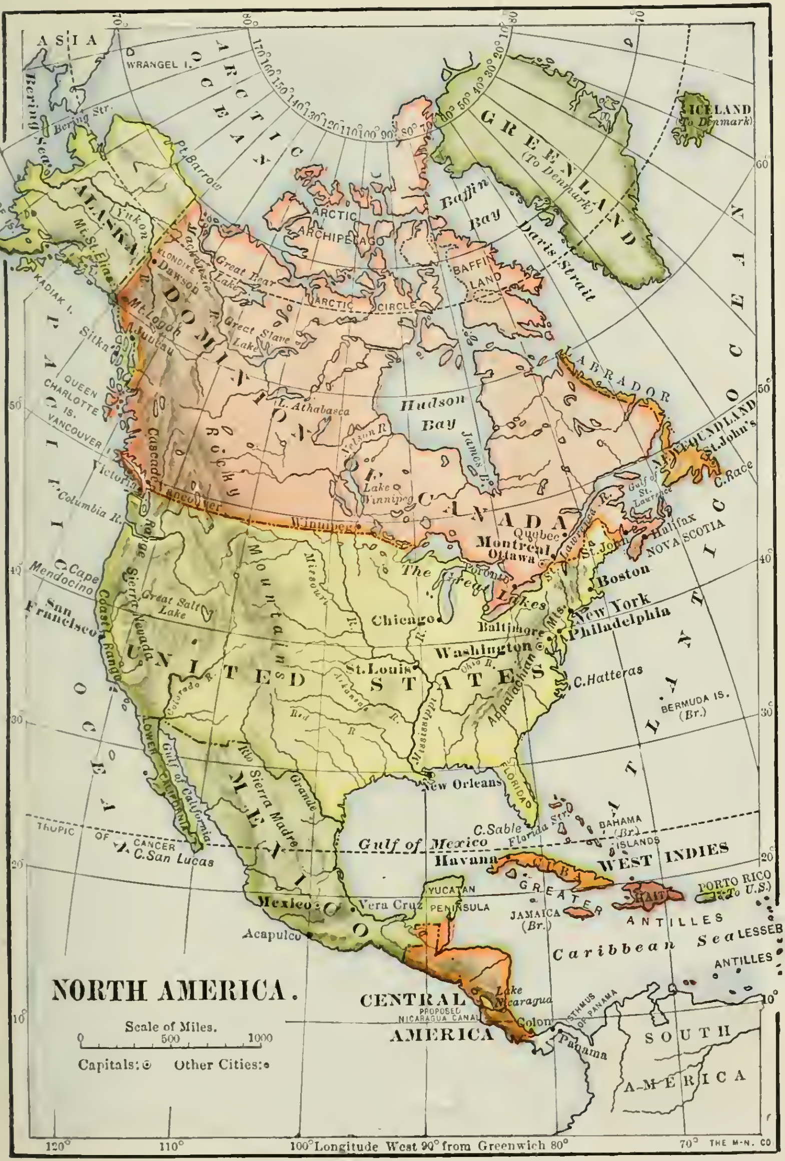

NORTH AMERICA.
Scale of Miles.
0
500
1000
Capitals: ⊙
Other Cities: •
ASIA
WRANGEL I.
ARCTIC OCEAN
Bering Sea
Bering Str.
PRIBILOF IS.
Pt. Barrow
ALASKA
Yukon
Mt. St. Elias
KADIAK I.
Sitka
Juneau
Mt. Logan
KLONDIKE
Dawson
Mackenzie R.
Great Bear Lake
Great Slave Lake
L. Athabasca
ARCTIC ARCHIPELAGO
ARCTIC CIRCLE
BAFFIN LAND
Baffin Bay
Davis Strait
GREENLAND (To Denmark)
ICELAND (To Denmark)
LABRADOR
DOMINION OF CANADA
Hudson Bay
James B.
Nelson R.
Lake Winnipeg
Winnipeg
QUEEN CHARLOTTE IS.
VANCOUVER I.
Victoria
Vancouver
Cascade R.
Rocky Mountains
Columbia R.
Cape Mendocino
San Francisco
Coast Range
Sierra Nevada
Great Salt Lake
Colorado R.
UNITED STATES
Missouri R.
Mississippi R.
Ohio R.
Arkansas R.
Red R.
Chicago
St. Louis
The Great Lakes
Toronto
Montreal
Ottawa
Quebec
St. Lawrence R.
Gulf of St. Lawrence
NEWFOUNDLAND
St. John's
C. Race
Halifax
NOVA SCOTIA
St. John
Boston
New York
Philadelphia
Baltimore
Washington
Appalachian Mts.
C. Hatteras
BERMUDA IS. (Br.)
New Orleans
FLORIDA
C. Sable
Florida Str.
BAHAMA (Br.) ISLANDS
Gulf of Mexico
Havana
CUBA
WEST INDIES
GREATER ANTILLES
HAITI
PORTO RICO (To U.S.)
JAMAICA (Br.)
LESSER ANTILLES
Caribbean Sea
LOWER CALIFORNIA
Gulf of California
Rio Grande
Sierra Madre
MEXICO
TROPIC OF CANCER
C. San Lucas
Mexico
Vera Cruz
Acapulco
YUCATAN PENINSULA
CENTRAL AMERICA
Lake Nicaragua
PROPOSED NICARAGUA CANAL
Colon
ISTHMUS OF PANAMA
Panama
SOUTH AMERICA
PACIFIC OCEAN
ATLANTIC OCEAN
120°
110°
100° Longitude West 90° from Greenwich 80°
70°
THE M-N. CO

Fig. 31

lines between the different nations are shown on this map by heavy lines. Point them out.

In some parts you see that a *natural boundary* has been chosen, such as a river or a chain of lakes; but it is often only a straight line, cutting across rivers, lakes, and mountains. Examine the boundary of the Dominion to determine how much of it is natural.

Where the boundary is only a straight line, it is marked by a row of posts or stone pillars a few rods apart, and if you were to cross from one country to another you might easily see them.

VIII. THE DOMINION OF CANADA

Map Questions. — (1) What part of North America does Canada occupy? (2) What waters border Canada? (3) What country and in which direction? (4) What land is northwest of Canada? (5) What land northeast? (6) What is the greatest distance across the country from east to west? (Notice the scale of miles on the map.) From south to north? (7) What forms the great central basin? (8) The great southern basin? (9) What great divide is in the west? (10) What two great rivers show the northern slope and the southern basin between the Rocky Mountains and Hudson Bay? (11) What climate might you expect in the northern part? (12) Find Ottawa, Montreal, Toronto, Quebec, St. John, Halifax, Winnipeg, Victoria. Regina, and state where each is.

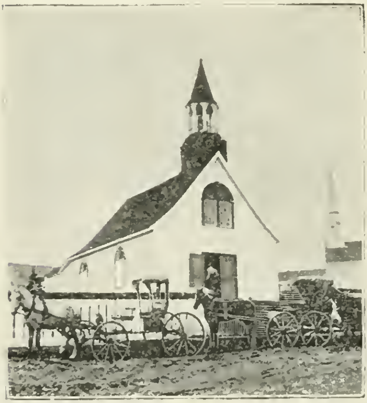
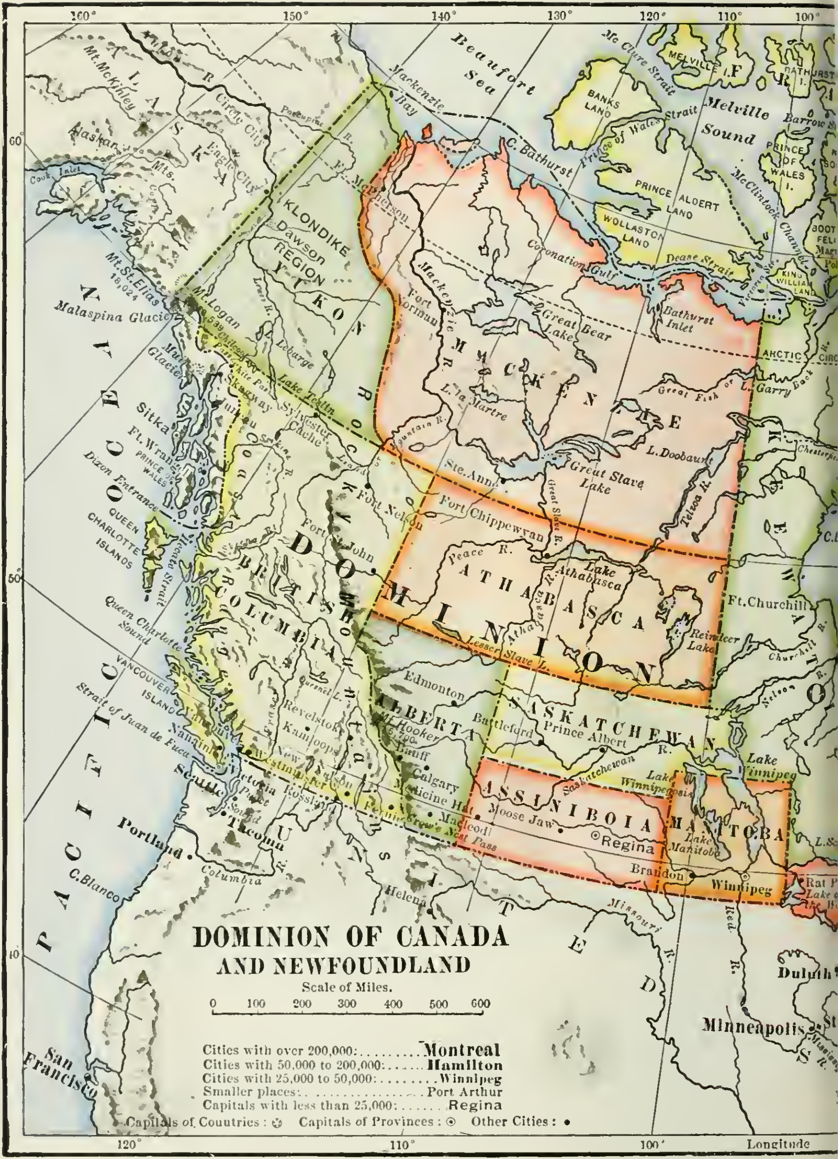


Fig. 35.

The old Jesuit Mission Chapel, built by the French at Tadousac, at the mouth of the Saguenay River in 1746.

You have already learnt (Our Home, p. 92) how the whole of the American Continent was peopled originally by the Indians, and how various European nations crossed the Atlantic Ocean, and took possession of the land, sometimes with the consent of the Indians, but more often against their will. You have also learnt how the northern part of North America was discovered nearly 400 years ago by



DOMINION OF CANADA
AND NEWFOUNDLAND

Scale of Miles.

Cities with over 200,000: .... **Montreal**
Cities with 50,000 to 200,000: .... **Hamilton**
Cities with 25,000 to 50,000: .... Winnipeg
Smaller places: .... Port Arthur
Capitals with less than 25,000: .... Regina
Capitals of Countries : ✪ Capitals of Provinces : ⊙ Other Cities : ●

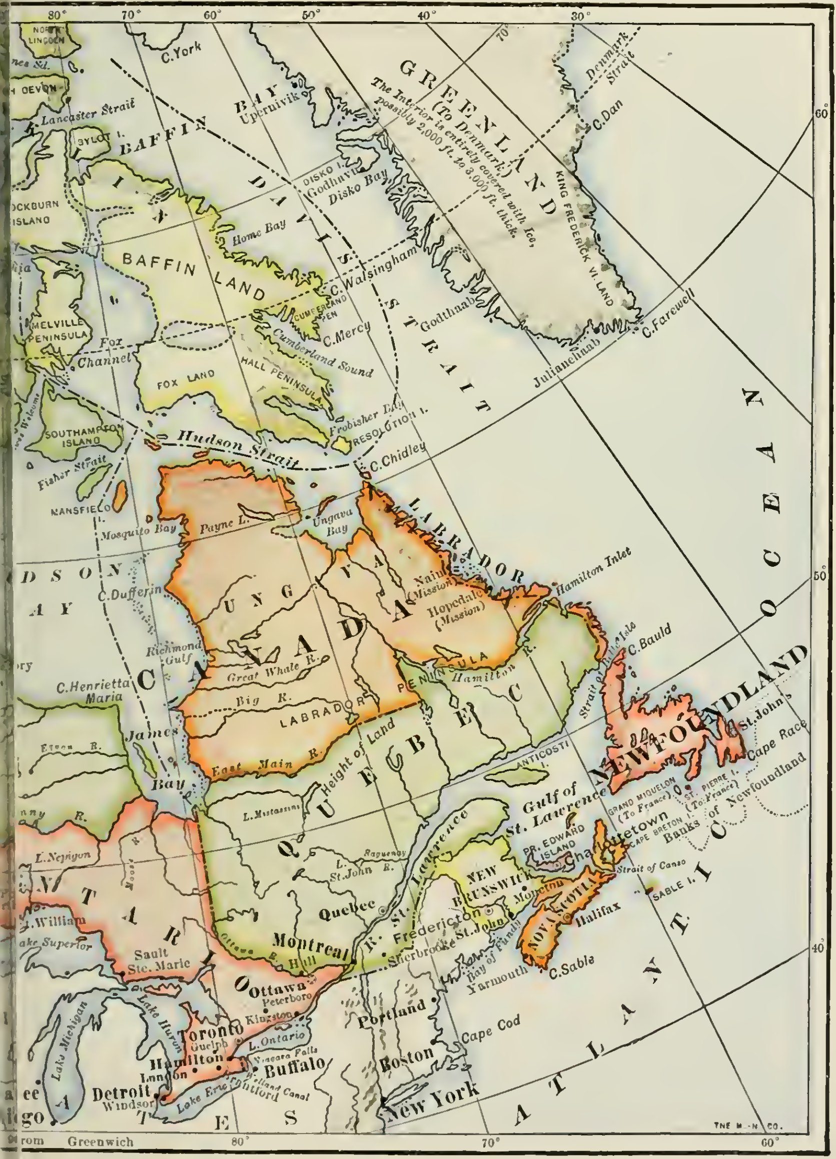

GREENLAND
(To Denmark)
The Interior is entirely covered with Ice, possibly 2,000 ft. to 3,000 ft. thick.
KING FREDERICK VI. LAND
Denmark Strait
C.Dan
C.Farewell
Julianehaab
Godthaab
Disko Bay
DISKO I.
Godhavn
Upernivik
BAFFIN BAY
C.York
NORTH LINCOLN
DEVON
Lancaster Strait
BYLOT I.
COCKBURN ISLAND
BAFFIN LAND
Home Bay
DAVIS STRAIT
C.Walsingham
CUMBERLAND PEN
C.Mercy
Cumberland Sound
HALL PENINSULA
Frobisher Bay
RESOLUTION I.
FOX LAND
MELVILLE PENINSULA
Fox Channel
SOUTHAMPTON ISLAND
Fisher Strait
MANSFIELD I.
Hudson Strait
C.Chidley
Ungava Bay
Payne L.
Mosquito Bay
HUDSON BAY
C.Dufferin
Richmond Gulf
C.Henrietta Maria
James Bay
UNGAVA
LABRADOR
Nain (Mission)
Hopedale (Mission)
Hamilton Inlet
Hamilton R.
PENINSULA
Great Whale R.
Big R.
LABRADOR
East Main R.
Height of Land
CANADA
QUEBEC
L.Mistassini
Saguenay
L. St.John
Quebec
Montreal
Hull
Ottawa R.
St. Lawrence R.
ANTICOSTI I.
Gulf of St. Lawrence
Strait of Belle Isle
C.Bauld
NEWFOUNDLAND
St.John's
Cape Race
GRAND MIQUELON (To France)
ST. PIERRE I. (To France)
Banks of Newfoundland
CAPE BRETON I.
PR. EDWARD ISLAND
Charlottetown
Strait of Canso
SABLE I.
NOVA SCOTIA
Halifax
C.Sable
NEW BRUNSWICK
Moncton
Fredericton
St.John
Bay of Fundy
Yarmouth
Sherbrooke
Portland
Boston
Cape Cod
New York
ATLANTIC OCEAN
ONTARIO
L.Nepigon
Moose R.
Albany R.
Severn R.
Sault Ste. Marie
Ft.William
Lake Superior
Lake Michigan
Lake Huron
Ottawa
Peterboro
Kingston
Toronto
Guelph
Hamilton
London
Brantford
L. Ontario
Niagara Falls
Welland Canal
Buffalo
Lake Erie
Detroit
Windsor
Milwaukee
Chicago
UNITED STATES
West from Greenwich
80°
70°
60°
50°
40°
30°
THE M--N CO.

Fig. 34

Frenchmen, under Jacques Cartier, and called Canada, and how settlements were made chiefly on the sea-coast and on the shores of the St. Lawrence River.

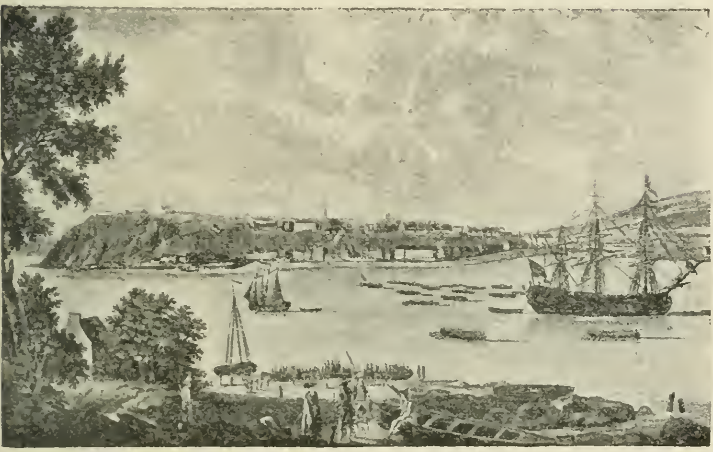


FIG. 36.
A general view of Quebec, from Point Levis, in 1753.

From there the early French pioneers extended their missions far away to the west by the Ottawa River and the Great Lakes, and explored the Mississippi River to its mouth in the Gulf of Mexico. Trace their course on the map (Fig. 31).

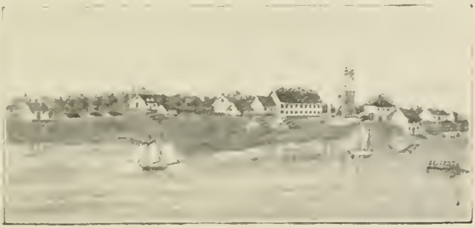


FIG. 37.
View of Cataraqui (Kingston), showing the remains of old Fort Frontenac, in 1783.

South of the Great Lakes the country had been taken possession of by the British, and between them and the French fierce rivalry and warfare continued up to about 140 years ago, when Canada was given up by France to Great Britain.

The whole white population at that time (1763) was not over 70,000, and these were grouped mainly on the banks of the St. Lawrence River, or at a few points on the seacoast or on the Great Lakes, near some fortified post, where they could defend themselves against the attacks of the Indians. A few years afterwards this population was increased by a large number of refugees (about 40,000) from the United States, who preferred to sacrifice their property and remain under British authority rather than join with the rebels, as the founders of the United States were then called.

FIG. 38.

View of Fort George, at the mouth of the Niagara River, 1812.

Canada was not then the great country it is now. Under the French rule, that part of the country bordering on the St. Lawrence River and north of the Great Lakes, was called Canada, and that part east of the Notre Dame Mountains and south of the Bay of Chaleurs and Gulf of St. Lawrence, bordering on the Atlantic Ocean, was called Acadie or Acadia. See on the map (Fig. 34) what a comparatively small part of the Dominion of Canada this now forms. In fact, the whole of the present vast country of Canada was practically in the possession of the Indians; and although many daring explorers had travelled far west in search of a route to India, neither they nor the adventurous fur-traders had ever reached as far as the Rocky Mountains. Now, we may travel from ocean to ocean in a luxurious carriage on the Canadian Pacific Railway, whereas it is only a little more than a hundred years ago (1793) since Sir Alexander Mackenzie made the first entire journey from ocean to ocean, across the prairies, and over the Rocky Mountains, through a country inhabited by warlike tribes of Indians.

Let us see how this change has come about, from the Canada of one hundred years ago to the Canada of to-day, and how from small beginnings such great results have been developed. In order the more easily to study the subject it is better to review the whole and then to take up each section of the country separately.

When Acadia and, later on, Canada were given up by France, both of these countries became Provinces of Great Britain, and each had its own separate government. Acadia was named Nova Scotia by the British, but Canada retained its original name. After a time, Canada was divided into Upper and Lower Canada, and Acadia into Nova Scotia and New Brunswick. The islands of St. Jean or St. John (Prince Edward Island) and Isle Royale (Cape Breton), which had not been included in the cession of Acadia, were given up to Great Britain at a later date, and became separate Provinces. Cape Breton was finally made part of Nova Scotia, but Prince Edward Island has continued to be a separate Province.

This was the position of the country when in the year 1867 the Dominion of Canada was formed, comprising at first Ontario (Upper Canada), Quebec (Lower Canada), New Brunswick, and Nova Scotia. The First of July is now annually celebrated as a public holiday in remembrance of the formation of this union. In 1871 it was joined by British Columbia, and in 1873 by Prince Edward Island.

In the year 1869 the rights of a trading company, called "The Hudson's Bay Company," in the vast territory lying north and west of the original Province of Canada, and extending to the Arctic and Pacific oceans, were purchased by the Government of the Dominion. Out of this great tract of land the Province of Manitoba was organized in 1870 ; and afterwards the North-West Territories, as the country was called, were divided into eight Districts and one Territory (Yukon). Name these Districts from the map and tell how they are situated. Four of these Districts, between Manitoba and Keewatin on the east and British Columbia on the west, have since been united under the name of "The North-West Territories" for partial self-government. These will probably soon be formed into a separate province. Name them from the map (Fig. 34).

Name the different Provinces and tell how they are situated.

Each of the Provinces has its own government, as explained in Our Home, page 122, but the Territories and unorganized Districts are under the more direct control of the Dominion Government.

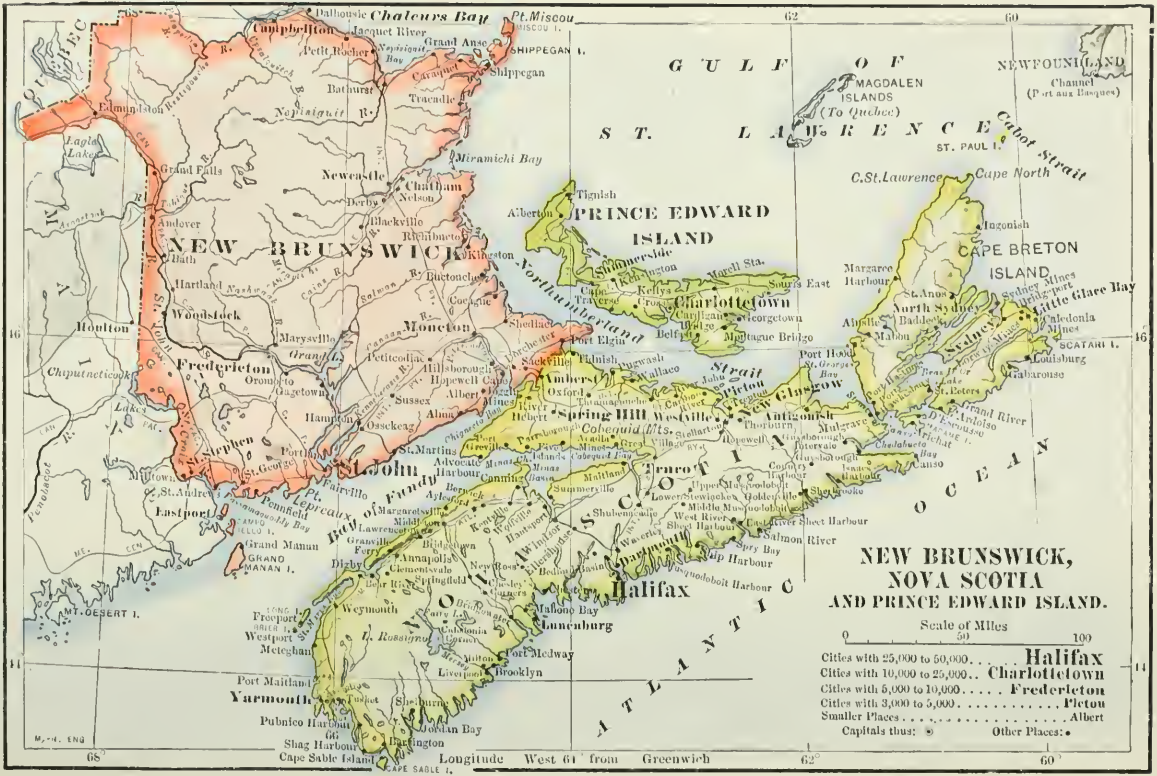

NEW BRUNSWICK, NOVA SCOTIA AND PRINCE EDWARD ISLAND.
Scale of Miles
0
50
100
Cities with 25,000 to 50,000...... Halifax
Cities with 10,000 to 25,000.. Charlottetown
Cities with 5,000 to 10,000..... Fredericton
Cities with 3,000 to 5,000............ Pictou
Smaller Places.................. Albert
Capitals thus: ⊙
Other Places: •
Longitude West 61° from Greenwich
68°
66
62°
60°
62
60
46
44
GULF OF ST. LAWRENCE
ATLANTIC OCEAN
NEW BRUNSWICK
NOVA SCOTIA
PRINCE EDWARD ISLAND
CAPE BRETON ISLAND
MAGDALEN ISLANDS (To Quebec)
NEWFOUNDLAND
Channel (Port aux Basques)
Cabot Strait
ST. PAUL I.
C. St. Lawrence
Cape North
QUEBEC
MAINE
Chaleurs Bay
Pt. Miscou
MISCOU I.
SHIPPEGAN I.
Shippegan
Dalhousie
Campbellton
Jacquet River
Petit Rocher
Nepisiguit Bay
Grand Anse
Caraquet
Bathurst
Tracadie
Nepisiguit R.
Edmundston
Eagle Lake
Grand Falls
Andover
Bath
Hartland
Woodstock
Houlton
Chiputneticook Lakes
Fredericton
Oromocto
Gagetown
Marysville
Grand L.
Newcastle
Chatham
Nelson
Derby
Blackville
Miramichi Bay
Richibucto
Kingston
Buctouche
Cocagne
Moncton
Shediac
Petitcodiac
Hillsborough
Hopewell Cape
Albert
Sussex
Alma
Hampton
Osskeag
St. John
St. Martins
Fairville
Pt. Lepreaux
Pennfield
St. George
St. Stephen
St. Andrews
Milltown
Eastport
Passamaquoddy Bay
CAMPOBELLO I.
Grand Manan
GRAND MANAN I.
MT. DESERT I.
Penobscot
Bay of Fundy
Northumberland Strait
Dorchester
Sackville
Port Elgin
Tignish
Alberton
Summerside
Kensington
Kellys Cross
Cape Traverse
Charlottetown
Cardigan Bridge
Georgetown
Montague Bridge
Belfast
Morell Sta.
Souris East
Amherst
Oxford
River Hebert
Springhill
Tidnish
Pugwash
Wallace
River John
Pictou
Trenton
New Glasgow
Westville
Cobequid Mts.
Stellarton
Antigonish
Thorburn
Parrsboro
Port Greville
Advocate Harbour
Five Islands
Minas Basin
Cobequid Bay
Truro
Maitland
Summerville
Canning
Kentville
Wolfville
Hantsport
Windsor
Berwick
Aylesford
Margaretsville
Middleton
Lawrencetown
Bridgetown
Granville Ferry
Annapolis
Clementsvale
Digby
Bear River
Springfield
Weymouth
Freeport
LONG I.
BRIER I.
Westport
Meteghan
Port Maitland
Yarmouth
Tusket
Pubnico Harbour
Shag Harbour
Cape Sable Island
CAPE SABLE I.
Barrington
Shelburne
Jordan Bay
Liverpool
Brooklyn
Milton
Port Medway
L. Rossignol
Caledonia Corner
Bridgewater
Mahone Bay
Lunenburg
Chester
New Ross
Chesley's Corners
Bedford Basin
Halifax
Dartmouth
Waverley
Shubenacadie
Lower Stewiacke
Upper Musquodoboit
Middle Musquodoboit
West River Sheet Harbour
Sheet Harbour
Salmon River
Spry Bay
Ship Harbour
Musquodoboit Harbour
Sherbrooke
Country Harbour
Isaacs Harbour
Guysborough
Intervale
Mulgrave
Canso
Chedabucto Bay
Hopewell
Port Hood
St. Georges Bay
Port Hawkesbury
Margaree Harbour
Ainslie
Mabou
Baddeck
North Sydney
St. Anns
Ingonish
Sydney
Sydney Mines
Bridgeport
Little Glace Bay
Caledonia Mines
SCATARI I.
Louisburg
Gabarouse
Bras d'Or Lake
St. Peters
Grand River
D'Escousse
Arichat
Ardoise
Mabou

Fig. 39

IX. THE ATLANTIC PROVINCES

MAP QUESTIONS. — (1) Name the Atlantic Provinces. (2) Which is the smallest? (3) On what waters do they border? (4) What mountains are in these Provinces? (5) In what direction do they extend? (6) How is Nova Scotia connected with New Brunswick? (7) How wide is this isthmus? (See scale of miles on the map.) (8) What bay separates these two Provinces? (9) How are Prince Edward Island and Cape Breton separated from the mainland? (10) What two large rivers drain the centre and north of New Brunswick? (11) What two large islands nearly enclose the Gulf of St. Lawrence? (12) What two are in the Gulf? (13) Where would you expect to find the largest cities? (14) In what direction would you sail from Halifax to reach Great Britain? (15) What is the capital of each Province? (16) Where is it situated? (17) In what direction is Ottawa from St. John? Charlottetown from Halifax?

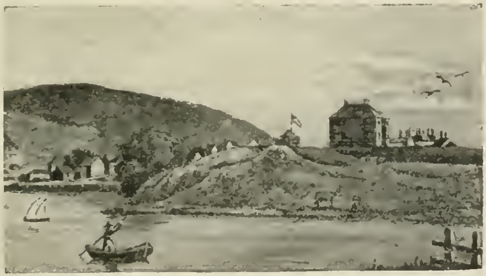


FIG. 40.

View of the fort and part of the town of Annapolis in the year 1829.

Acadia. — A short time after the discovery of America by Columbus (p. 2), that part of the continent now called Nova Scotia was visited by John Cabot, a navigator in the service of Henry VII. of England. No settlement, however, was made there until more than a hundred years later

(1605), when the French landed at Annapolis Basin (Fig. 40).[1] They named the country Acadie or Acadia, and it comprised all the land between the watershed of the St. Lawrence River and the Atlantic Ocean. What mountains form this watershed (see map, Fig. 57)?

For about one hundred years Acadia remained in the possession of France, when it was given over to Great Britain (1713), and was thereafter called Nova Scotia.

Fig. 41.

Remains of the fortress of Louisburg, once one of the strongest in the world. Its walls formed a circuit of 2½ miles, and were 36 feet high, and 40 feet thick at the base. The cost of the fortifications were $6,000,000, an enormous sum in those days. Demolished by the British in 1760.

The most important fortress in North America belonging to the French was built at Louisburg, on the island of Cape Breton, but this was captured by the British, and now it is only a heap of ruins (Fig. 41).

Seaports. — If you examine the map, you will notice that the coast is very irregular, with many deep bays, promontories, and fine harbors. This is especially noticeable in the Island of Cape Breton, where the Bras d'Or Lake cuts the island in two, being connected with St. Peter's Bay on the south by the short St. Peter's Canal. These deep indentations have been caused by the sinking of the land, as you have learned (Our Home, p. 62). Draw the coastline showing some of these features.

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[1] Whenever a city, river, etc., is mentioned in the text, the pupils should be required to locate it on the map, giving Province and position.

The excellent harbors have determined the places where the principal cities and towns should grow up, and where the terminal points of the railways should be. The largest of these are HALIFAX and ST. JOHN (Our Home, Fig. 104). Halifax is also important as being a fortified city and the chief naval station for the British fleet on the North Atlantic Ocean (Our Home, Fig. 113). Here is also a very extensive imperial dockyard for repairing the great warships (Fig. 42).

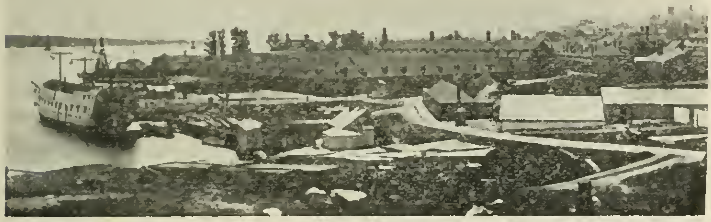


FIG. 42.
View of H. M. Dockyard at Halifax, N.S.

A fine harbor by itself cannot make a large city. As you have already learned (Our Home, p. 63), this is important chiefly because it renders the loading and unloading of vessels easy and safe. But unless there were many people supplying and sending material to load the vessels, there would be little need for these harbors. The St. Lawrence River is closed by ice in the winter, and then Halifax and St. John become the seaports for the whole eastern part of the Dominion, as they remain open all the year round.

Fishing. — Some of the towns are situated on the coast, because many of the men who live in them are fishermen, and must have their homes near the water. In the early days, cod, herring, mackerel, and halibut were easily caught near the shore, but now large vessels must be used, as it is often necessary to sail far from land, the men being gone perhaps for weeks before being able to fill their vessels with fish (Fig. 43).

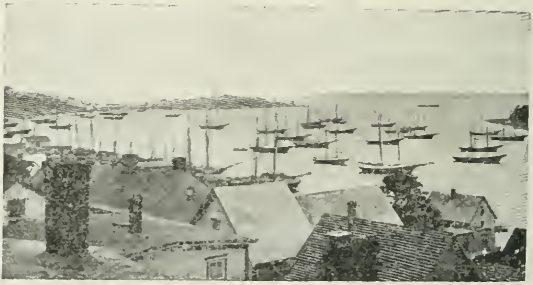


FIG. 43.

Harbor of Lunenburg, N.S., showing fleet of fishing vessels. These are all engaged in the deep-sea fishery.

It is important, therefore, to have good harbors to which the fish can be brought, and where the fishing vessels can be fitted out. YARMOUTH, LUNENBURG, CHATHAM, and SHEDIAC, besides HALIFAX and ST. JOHN, are important fish markets. From there fish

FIG. 44.

Fishing boats at Summerside, P.E.I.

are sent to other parts of the Dominion, as well as to the West Indies, Europe, and the United States.

Besides the deep-sea fisheries, there are also the shore fisheries for oysters and lobsters, as well as for cod, herring, mackerel, etc. These afford employment to many men, not only in the catching, but in the canning and preparing for market as well (Figs. 44 and 45). Much salmon is also taken by gill nets in the tidal waters of the Gulf of St. Lawrence, and by rod and line in the rivers flowing into the Gulf. The latter, on that account, have become favorite resorts for the angler. Every year many men are attracted there to enjoy the vigorous sport and healthful recreation.

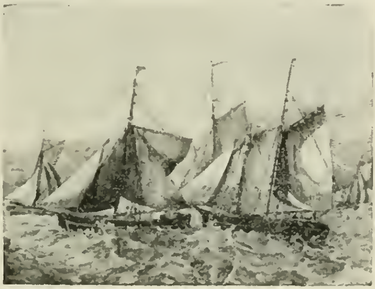


FIG. 45.

Fleet of oyster boats off Caraquet, N.B., on the Bay of Chaleurs in the Gulf of St. Lawrence.

The salmon spend most of the year in salt water, but at a certain season they seek the fresh water of the rivers, swimming and leaping up the swiftest currents, in spite of rapids, to spawn or deposit their eggs, after which they return to the salt water (see Fig. 90).

During the fishing season large quantities of fresh salmon are shipped away to different parts of Canada and the United States.

Rivers. — The map will show that the rivers in Nova Scotia are all very short, and that scarcely any place is over thirty miles distant from the salt water. In New Brunswick, however, a low height of land separates the rivers flowing into the Gulf of St. Lawrence from those flowing into the Bay of Fundy. The ST. JOHN RIVER system occupies the larger part of New Brunswick, and with its upper tributaries supplies the great highway for the lumberman. Along its lower course and in the valleys of its tributaries there are fertile farming lands. Trace the course of the St. John.

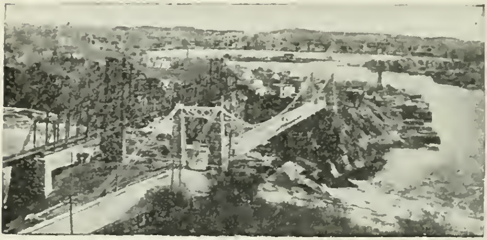


FIG. 46

Suspension Bridge over the St. John River. Notice the fall of the water into the harbor.

The St. John River, at its entrance into St. John Harbor, is compressed into a narrow channel between high rocky banks, so that the water cannot flow freely away. Here, therefore, is seen a remarkable occurrence of a double water-fall at every tide (see p. 48). At high tide in the harbor, the water there is twelve feet higher than in the river, thus creating a fall of that height from the harbor inward; and at low tide the water in the harbor is about ten feet lower than in the river, thus creating a fall outward. Can you understand this?

FIG. 47.

Apple orchard in the Annapolis Valley, Nova Scotia

The valley through which the ANNAPOLIS RIVER in Nova Scotia flows is a broad flood plain (see Fig. 48) extending north-east to the Avon River, which flows into Minas Basin. It is very fertile and famed for its apple orchards (Fig. 47). Dikes have been built (Fig. 48) on the banks of both of these rivers to keep the sea-water from overflowing the land at high tide (p. 48).

Farming. — Having seen that the towns along the coast are inhabited largely by fishermen, let us see if there are many people living inland and what they do. There are so many hills and mountains in Nova Scotia and in the north-western part of New Brunswick that the soil is often thin and stony, and the farms are comparatively small, supplying generally only enough products for use in the towns close by. There are, however, many fertile valleys where grain, fruit, and dairy products are abundant. Prince Edward Island is especially noted for its deep rich soil and for the farm produce it exports (Fig. 49).

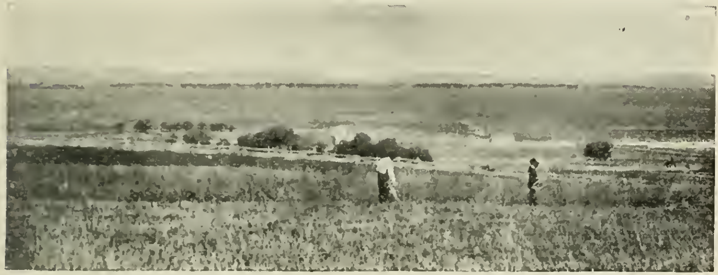


Fig. 48.

Diked lands at Grand Pré on the Avon River, the home of "Evangeline."

Lumbering. — But if the hilly country is not favorable for farming, it is valuable for the timber with which a great part of it is covered.

During spring freshets, when the winter snows are melting and the rivers are high, the logs are floated down to a sawmill, or to a seaport where vessels can reach them. There they are shipped away as square timber, or in the shape of deals or boards, when sawn up.

Shediac and Chatham have become important on account of being ports where timber is brought down for shipment; deals are chiefly shipped to Great Britain from St. John.

Fig. 49.
Farming scene in Prince Edward Island.

Shipbuilding. — Timber is also used for building ships, but not so much now as formerly, when vessels built in Nova Scotia and New Brunswick navigated every part of the world. Most of the large ships of the present time are built of iron, but the smaller vessels for the coasting trade and for fishing are still built of wood. Shipbuilding is chiefly carried on at St. John, Digby, Yarmouth, Lunenburg, and Windsor.

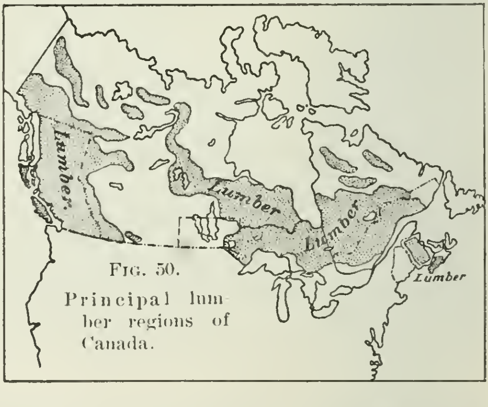


Fig. 50.
Principal lumber regions of Canada.

Mining. — Some of the most important products of the country are found beneath the soil, especially in Nova Scotia.

Iron. — In the first place a great amount of iron ore is found there. When dug out of the ground this often resembles reddish earth or stone, but it is also found as a black, heavy, semi-metallic rock. By putting this ore into what is called a *blast furnace* (Fig. 51), along with coal or coke and limestone, it is melted, and iron is obtained from it. The melted iron sinks to the bottom of the furnace, and is run off through a vent-hole into trenches made of sand, where it forms blocks or *pigs* (Fig. 52). In this shape it is then sent away to many places to be made into rails, car-wheels, engines, pillars and beams for buildings, ships,

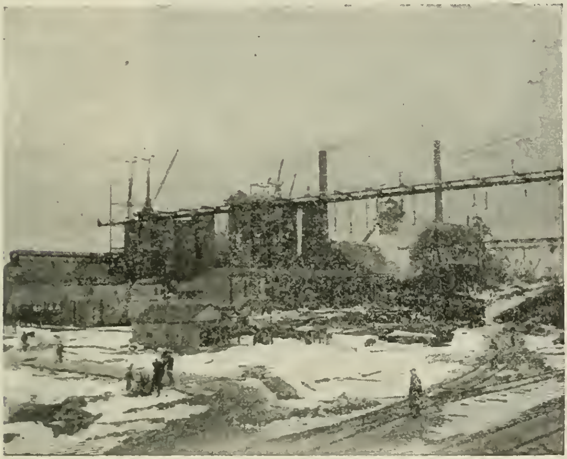


FIG. 51.

The outside of a blast furnace at Sydney, Cape Breton. The round towers are the furnaces; the tall slender towers, the chimneys. The ore, coal, and limestone are elevated, and then carried on cars over the tracks running to the top of the furnaces.

stoves, and a thousand other things. Steel is also made from iron, of which it is, in fact, only a harder quality. See how long a list you can make of articles made of iron or steel.

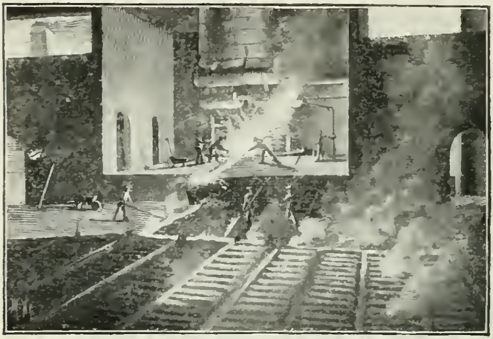


FIG. 52.
Molten iron running out of a blast furnace into trenches, where it cools to form pig iron.

Coal. — In order to make the iron ore useful to us as iron or steel, it requires an immense amount of fuel to obtain the heat necessary to melt the ore, so that the metal may be separated from the dross or earthy, rocky matter with which it is mixed. Fortunately, great quantities of coal are found not far from the iron mines. This is important, as it saves much expense in transporting the bulky raw material a long distance. SYDNEY, in Cape Breton, and NEW GLASGOW owe their importance to this combination, and SPRING HILL

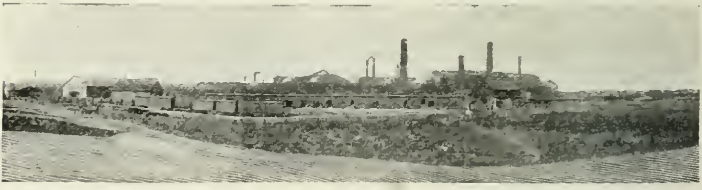


FIG. 53.
View of the iron and steel works at Trenton, near New Glasgow in Nova Scotia.

to its coal mines. PICTOU is the shipping port of NEW GLASGOW, STELLARTON, SPRING HILL, and the neighboring coal and iron mining districts.

Much coal is needed for stoves and for furnaces in houses, and the kind used for that purpose is *hard* or *anthracite* coal, which is brought from the United States. But the coal required for smelting iron ore, and for producing steam in factories, in locomotives, and on steamships is the kind found in Nova Scotia. There is, therefore, great demand for it, and there are thousands of car-loads and many ship-loads of it sent away to different parts of our own country and also to the United States. This is called *bituminous* coal.

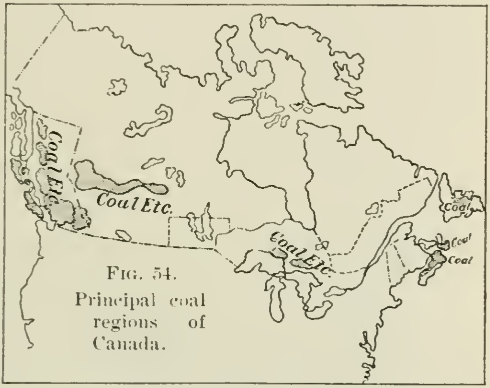


FIG. 54. Principal coal regions of Canada.

Gold, etc. — Although iron and coal are the most important products of the mines, there is also quite a large amount of the precious metal, *gold*, found in Nova Scotia, in the rocky land near the eastern coast. *Gypsum*, from which "plaster of Paris" is made, is found near Windsor in Nova Scotia, and much of it is exported.

Tides in the Bay of Fundy. — There is one peculiarity of this part of the Dominion, which requires to be noticed — the remarkable tides in the Bay of Fundy. The water of the ocean is never at rest. For about six hours there is a constant rise, or *flow*, as it is called, and for the following six hours there is a steady fall, or *ebb*, just like a great wave passing very slowly over the surface. Farther on, you will learn the cause of this. At the head of the Bay of Fundy are two smaller bays. Name them from the map (Fig. 39). When this great wave enters the Bay of Fundy it becomes so compressed between the shores that it rises as much as thirty feet, and when it enters the smaller bays it rises as much as sixty feet or more. It is the highest tide in the world, and comes in as fast as you could run, with a great swell or *bore* in front (Fig. 55), covering the muddy bottom, which had been left bare when the water receded. There you will often see vessels floating in deep water, which a few hours later will be lying on the muddy bottom far from any water. Although the tide ebbs and flows all over the ocean, the height of its rise and the rush of its current depend upon the obstacles it meets with along the shore, and other circumstances, but there are few places where it is so remarkable for its great

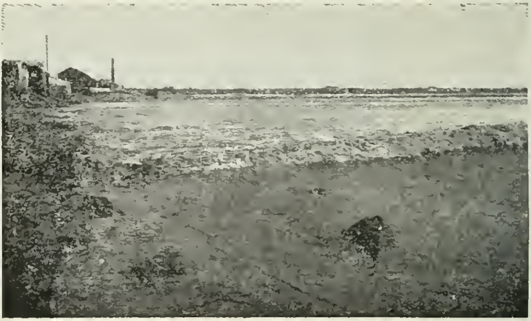


FIG. 55.

Tidal bore at Moncton, N.B. Here the tide rushes in at the rate of six or seven miles an hour.

rise and fall as in the Bay of Fundy. In the Gulf of St. Lawrence, at the Isthmus of Chignecto, only sixteen miles across, the tide does not rise more than five feet.

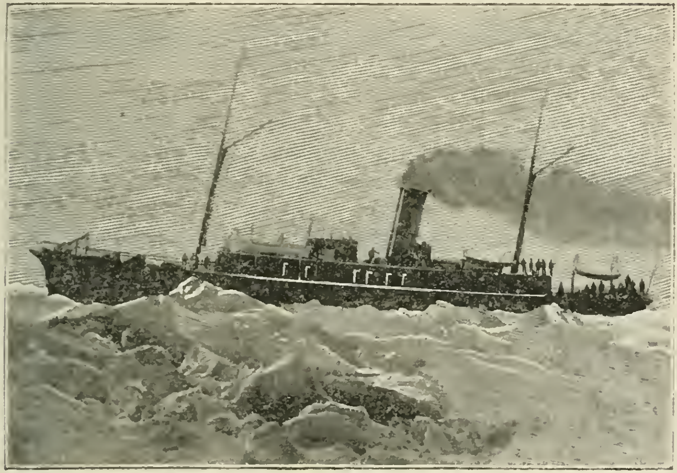


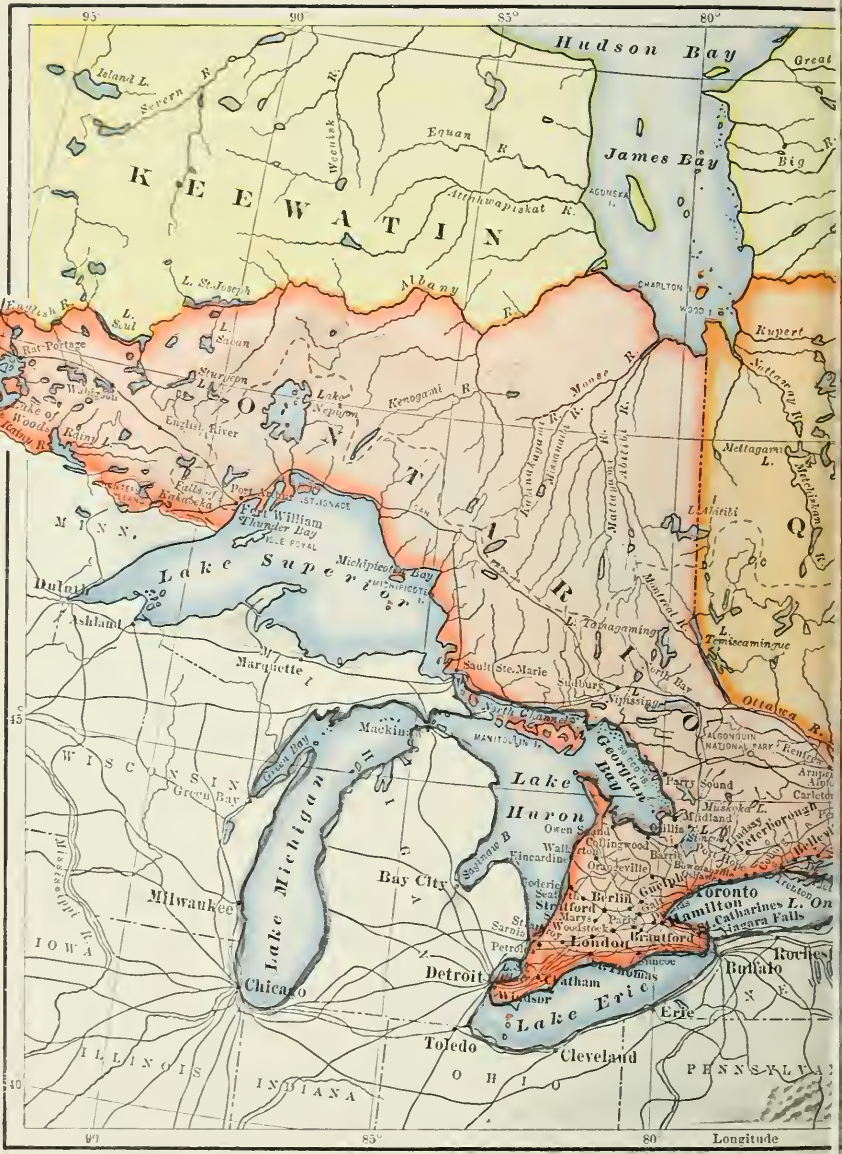
FIG. 56.

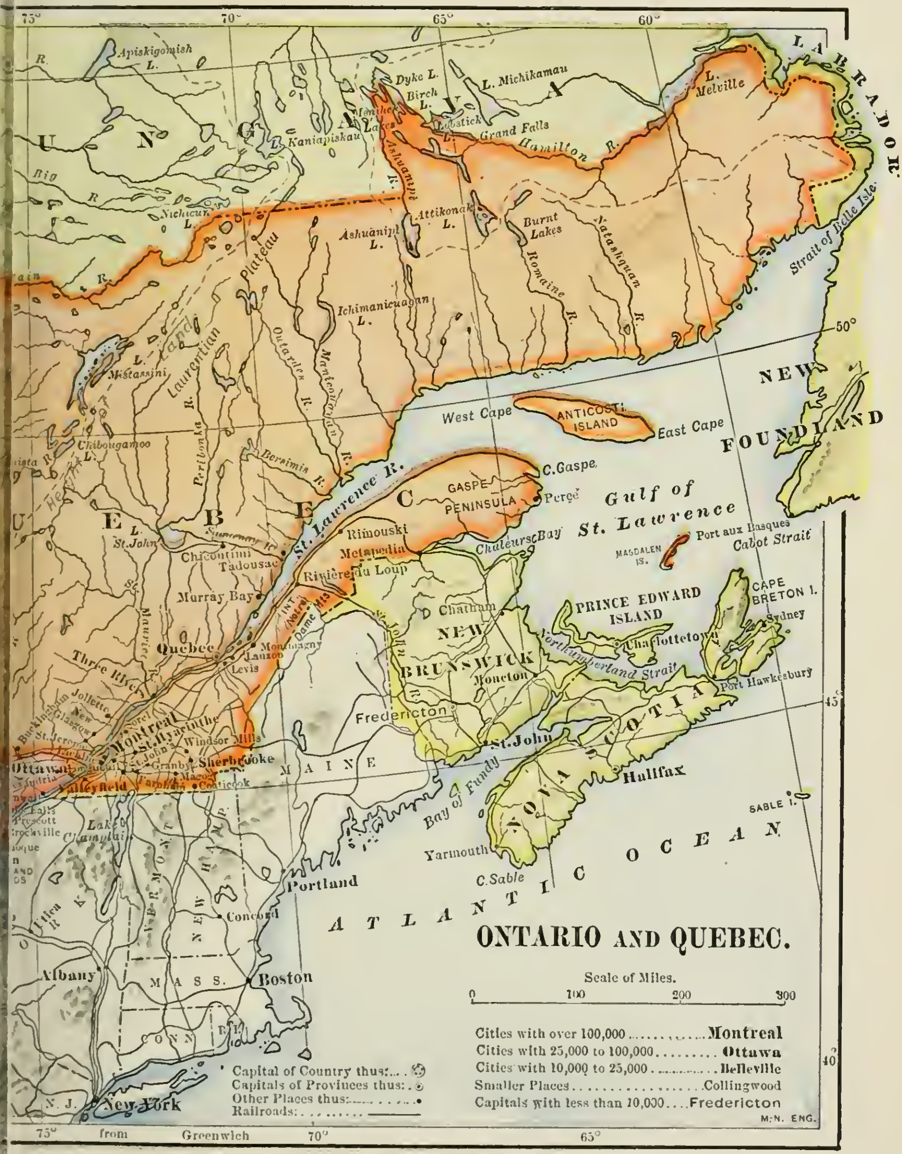
The ice-breaking steamship "Stanley," crushing her way over Northumberland Strait, between Pointe du Chêne, N.B., and Charlottetown, P.E.I.

X. PROVINCES OF THE ST. LAWRENCE RIVER SYSTEM

Map Questions. — (1) What Provinces are comprised in the basin of the St. Lawrence River system? (2) What river forms the principal dividing line between the two Provinces? (3) What rivers divide them from the Territories on the north? (4) Into what bay do these rivers flow? (5) Name the Great Lakes bordering Ontario on the south. (6) From what country do these separate Canada? (7) Which of the Great Lakes does not border on Canada? (8) What Province adjoins Ontario on the west? (9) What plateau forms the height of land in the north? (10) What great basin is north of this? (11) What mountains form the watershed in the south-east? (12) From what country and province do they separate Quebec? (13) How is the Province of Quebec separated from Newfoundland? (14) How far is it from Montreal to the Strait of Belle Isle? (15) Name some of the rivers flowing into the St. Lawrence. (16) In what direction do they flow? (17) Where are Ottawa, Toronto, Montreal, and Quebec situated? (18) Name some of the other principal towns and tell where they are situated.

Relief. — Ontario, as you see, occupies only the northern side of the hollow through which the waters of the Great Lakes and St. Lawrence River flow; Quebec occupies both sides of this hollow. Each extends a little beyond the height of land on the north side to the valleys through which the Albany River, in the west, and the East Main River, in the east, flow into James Bay. As a natural consequence of being thus situated in a hollow or basin, all the rivers flow towards the centre from the highlands on each side. The distance they have to run is short com-


95°
90°
85°
80°
Hudson Bay
Great
Island L.
Severn R.
Weenisk R.
Equan R.
James Bay
Big
R.
KEEWATIN
Attawapiskat R.
AGOMSKA I.
CHARLTON I.
WOOD I.
Albany R.
L. St. Joseph
English R.
L. Seul
L. Sacan
50°
Rat Portage
Rupert
Nottaway R.
Wabigoon
Sturgeon L.
Lake Nepigon
Kenogami R.
Moose R.
Lake of the Woods
Rainy R.
Rainy L.
English River
ONTARIO
Mettagami L.
Kabinakagami R.
Missanabie R.
Mattagami R.
Abitibi R.
Falls of Kakabeka
Port Arthur
ST. IGNACE
Fort William
Thunder Bay
ISLE ROYAL
CAN.
L. Abitibi
Q
Meglikiam R.
MINN.
Lake Superior
Michipicoten Bay
MICHIPICOTEN I.
Montreal R.
Duluth
Ashland
L. Tamagaming
L. Temiscamingue
Marquette
Sault Ste. Marie
Sudbury
North Bay
L. Nipissing
Ottawa R.
45
North Channel
MANITOULIN I.
ALGONQUIN NATIONAL PARK
Renfrew
Mackinac
Green Bay
MICHIGAN
Georgian Bay
Parry Sound
Arnprior
Almonte
Carleton
WISCONSIN
Green Bay
Lake Huron
Muskoka L.
Midland
Orillia
L. Simcoe
Lindsay
Peterborough
Owen Sound
Walkerton
Collingwood
Barrie
Port Hope
Bowmanville
Oshawa
Cobourg
Belleville
Saginaw B.
Kincardine
Orangeville
Trenton
Bay City
Goderich
Seaforth
Guelph
Toronto
Mississippi R.
Milwaukee
Stratford
Berlin
Galt
Dundas
Hamilton
L. Ontario
St. Catharines
Niagara Falls
St. Marys
Paris
Woodstock
Sarnia
Strathroy
Brantford
IOWA
Petrolea
London
L. St. Clair
Simcoe
St. Thomas
Rochester
Buffalo
Detroit
Chatham
Windsor
Chicago
Lake Michigan
Lake Erie
Erie
N. Y.
Toledo
Cleveland
ILLINOIS
INDIANA
OHIO
PENNSYLVANIA
40
90
85°
80°
Longitude



ONTARIO AND QUEBEC.
Scale of Miles.
0
100
200
300
Cities with over 100,000 .... Montreal
Cities with 25,000 to 100,000 .... Ottawa
Cities with 10,000 to 25,000 .... Belleville
Smaller Places .... Collingwood
Capitals with less than 10,000 .... Fredericton
Capital of Country thus: ....
Capitals of Provinces thus: .
Other Places thus: ....
Railroads: ....
M.N. ENG.
75°
70°
65°
60°
50°
45°
40°
from
Greenwich
LABRADOR
UNGAVA
QUEBEC
Apiskigomish L.
Dyke L.
Birch L.
L. Michikamau
Menihek Lakes
Lobstick L.
Grand Falls
Hamilton R.
L. Melville
Kaniapiskau L.
Big R.
Nichicun L.
Ashuanipi R.
Attikonak L.
Ashuanipi L.
Burnt Lakes
Romaine R.
Natashquan R.
Strait of Belle Isle
Plateau
Laurentian
Ichimanicuagan L.
L. Mistassini
Outardes R.
Manicouagan R.
Peribonka R.
Chibougamoo L.
Bersimis R.
L. St. John
Saguenay R.
Chicoutimi
Tadousac
Murray Bay
St. Maurice
Quebec
Lauzon
Levis
Montmagny
Three Rivers
Joliette
Montreal
St. Hyacinthe
Windsor Mills
Sherbrooke
Granby
Magog
Coaticook
Farnham
Valleyfield
Ottawa
Buckingham
St. Jerome
Sorel
New Glasgow
St. John's
Prescott
Brockville
Lake Champlain
St. Lawrence R.
Rimouski
Metapedia
Riviere du Loup
Notre Dame Mts.
GASPE PENINSULA
C. Gaspe
Perce
Chaleurs Bay
West Cape
ANTICOSTI ISLAND
East Cape
NEW FOUNDLAND
Gulf of St. Lawrence
Port aux Basques
Cabot Strait
MAGDALEN IS.
PRINCE EDWARD ISLAND
Charlottetown
Northumberland Strait
CAPE BRETON I.
Sydney
Port Hawkesbury
NEW BRUNSWICK
Chatham
Moncton
St. John R.
Fredericton
St. John
NOVA SCOTIA
Halifax
Bay of Fundy
Yarmouth
C. Sable
SABLE I.
ATLANTIC OCEAN
MAINE
Portland
NEW HAMP.
Concord
VERMONT
NEW YORK
Utica
Albany
MASS.
Boston
R.I.
CONN.
N. J.
New York

Fig. 57

pared with the height of the land in which they have their sources, and their courses are, therefore, interrupted by falls and rapids which prevent continuous navigation for any great distance.

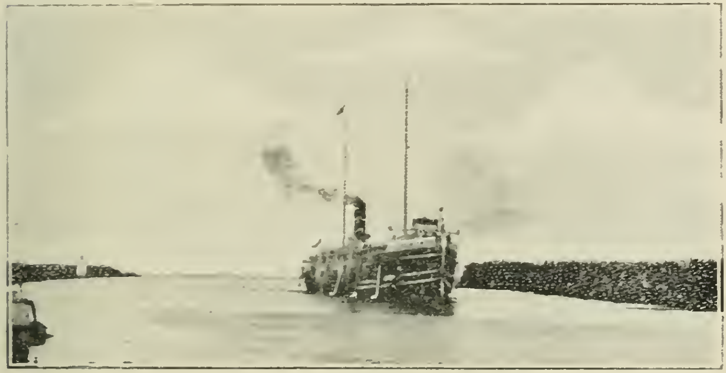


FIG. 58.
Steamship "Alberta" entering the harbor at Fort William from Lake Superior.

Let us now start from the highest point in this great

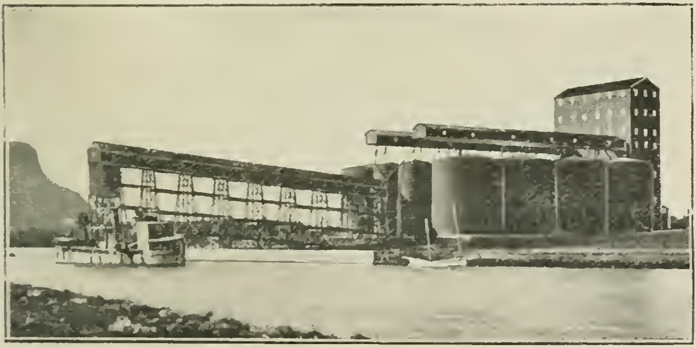


FIG. 59.
Canadian Pacific Railway tank elevators. View from East Fort William.

valley and follow the current of the waters to the ocean. In what direction should we face to begin our journey?

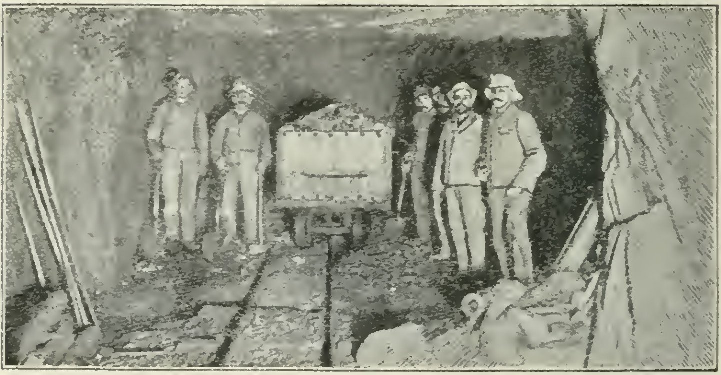


FIG. 60.
In the Sultana gold mine, Lake of the Woods District.

In front of us is Lake Superior, the largest of the Great Lakes, and immediately behind us are many small lakes, the largest being the LAKE OF THE WOODS. Into what do the waters of these lakes flow?

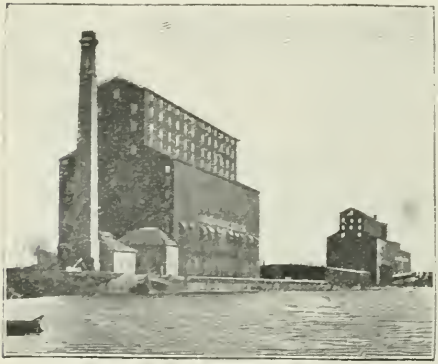


FIG. 61.
Grain elevators at Fort William.

Mining. — The district in which we stand is called the Rainy River District, and here is the chief *Gold Mining* industry of Ontario with RAT PORTAGE at the Lake of the

Woods, as the centre. Passing down the Kaministiquia River we come to FORT WILLIAM, an important shipping point for the grain from Manitoba and the North-west. Note the great elevators for receiving and shipping it (Figs. 59 and 61). Near there is PORT ARTHUR, on Thunder Bay. From Fort William the C. P. R. steamer (Fig. 58) takes us down Lake Superior, sighting MICHIPICOTEN, near which iron and gold occur, then down the St. Mary River and Canal (Fig. 63) to Sault Ste. Marie. From here by another steamer we take the North Shore route around Georgian Bay. North of this is SUDBURY, the centre of valuable *nickel* and *copper* mines. What islands do we pass on the way?

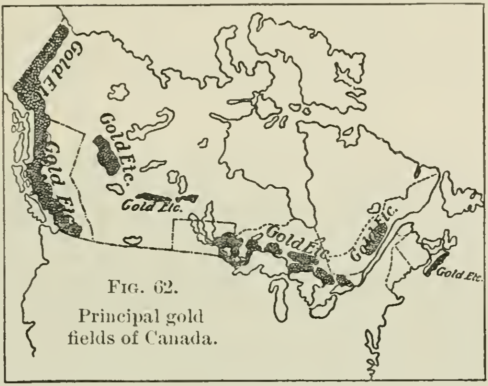


FIG. 62.
Principal gold fields of Canada.

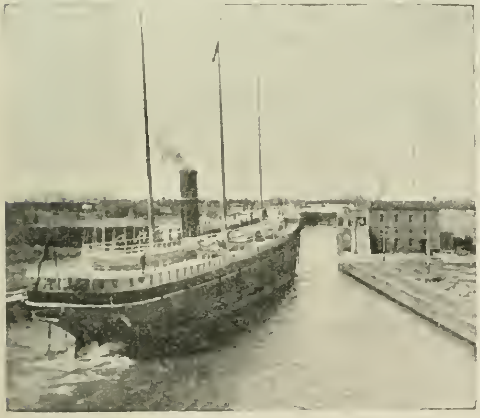


FIG. 63.
Steamship entering the lock of the Sault Ste. Marie Canal.

Lumbering. — It may be noticed that along the north shore of these lakes there are few towns, as the land is rocky and barren. It is, however, valuable for its forests from which immense quantities of lumber, chiefly pine, are cut every year, affording employment to many sawmills, usually situated near the mouths of the rivers, as at ALGOMA MILLS, FRENCH RIVER, SPANISH RIVER, PARRY SOUND, and other places.

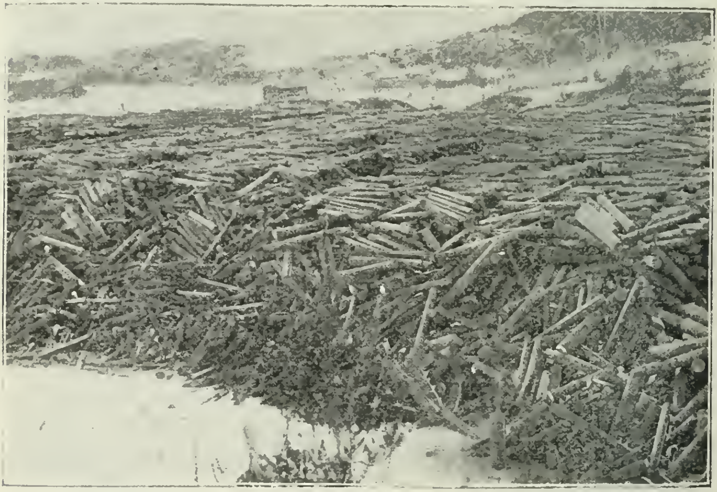


FIG. 64.

Spruce pulp wood for the Sault Ste. Marie pulp mill, piled on the ice at the Thessalon River, Lake Huron.

Throughout the whole of this great tract and north to James Bay, vast quantities of spruce and other trees are found, which are cut down to be ground into pulp for making paper (Fig. 64); for this purpose large mills have been built at Sault Ste. Marie (Our Home, Fig. 103).

Algonquin National Park. — Between the Georgian Bay and the Ottawa River and south-east of Lake Nipissing, a large tract of land, more than forty miles square, has been set apart as a home for the wild animals of Canada, where the moose and other deer can be safe from reckless hunters, and the land may remain in its natural beauty with its wild inhabitants. Of this, more than one-tenth part consists of numerous small rivers and lakes, where the beaver may build his dams and the wild fowl flock in peace. How long would it take you to walk across this park?

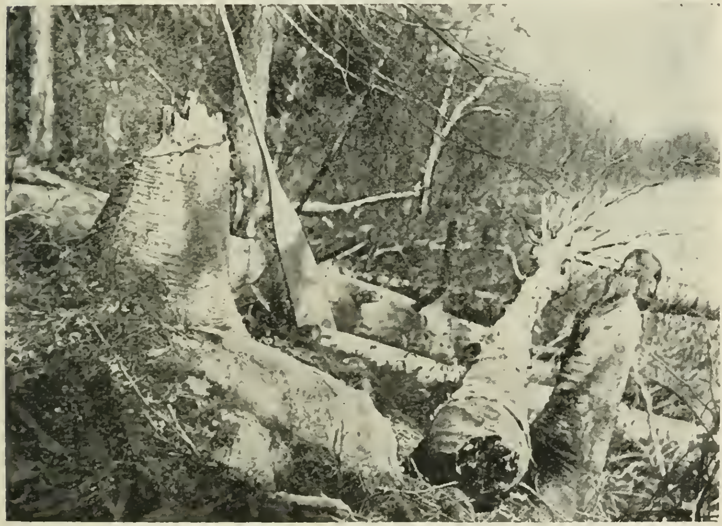


Fig. 65.

Scene in the Algonquin Park, showing trees cut down by beavers. Note the size of these trees.

You will observe, by looking at the map, that here a number of rivers have their sources and flow in various directions, thus showing that it is a central height of land, and it is in fact 2,000 feet above the level of the sea.

Lake Fisheries. — While we have been coasting along the north shore and noting the industries of the mine and of the forest, we must not overlook that of the lake. Lakes Superior and Huron supply great quantities of whitefish and salmon-trout, which are shipped away to all parts of the Provinces, fresh, packed in ice, or salted in barrels, chiefly from Sault Ste. Marie or from Killarney on Lake Huron.

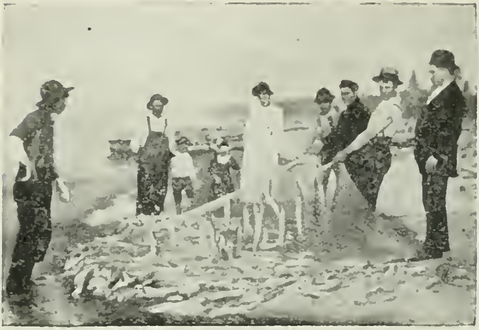


Fig. 66.
A catch of whitefish on Lake Superior.

Fig. 67.
View of the Midland Furnace, No. 1, belonging to the Canada Iron Furnace Company, showing dock, ore piles, etc.

Our steamship has now brought us to the harbor of OWEN SOUND or of COLLINGWOOD, and on the way we passed a steamer and barge carrying iron ore from Michipicoten to Collingwood, or to MIDLAND (Fig. 67), also on the Georgian Bay, to supply the smelting works there.

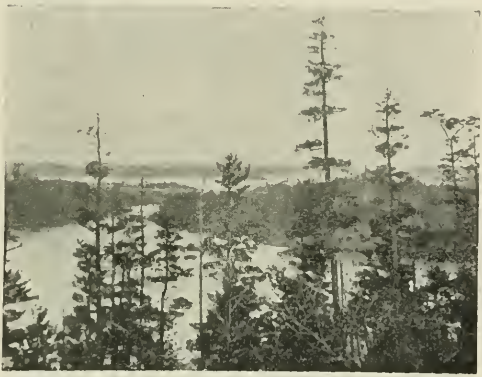


FIG. 68.

View near Sans Souci, among the 30,000 islands of the Georgian Bay.

Islands of the Georgian Bay. — Along the coast of the Georgian Bay you will notice innumerable islands, forming scenery of great beauty. From the Georgian Bay north-east to the Ottawa River and south-east to Lake Ontario, there is a constant succession of hills, lakes studded with islands, and streams with rapids and waterfalls; a region nowhere surpassed for its scenery, and the resort of thousands of persons for recreation, health, and sport.

Farming. — Travelling south to TORONTO, the capital of the Province of Ontario, we enter the splendid farming district of the Ontario Peninsula, where the fertile rolling land is especially suited for the cultivation of wheat and other grain, and for raising cattle, sheep, and horses. In the centre of this country is GUELPH, where there is an Agricultural College and Model Farm for the training of young men in the practical work of successful farming, and of preparing dairy products. Butter and cheese making form one of the most important industries of Canada (Fig. 69).

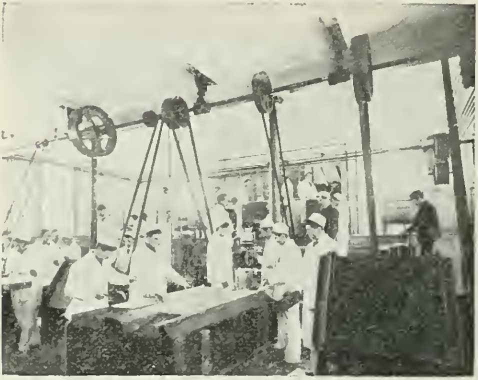


FIG. 69.
Making butter at the Model Farm, Guelph, Ont.

A well-settled farming country naturally leads to the building up of flourishing cities and towns, and accordingly we find many of these, such as LONDON, CHATHAM, ST. THOMAS, STRATFORD, and BRANTFORD. Name some other towns in the peninsula.

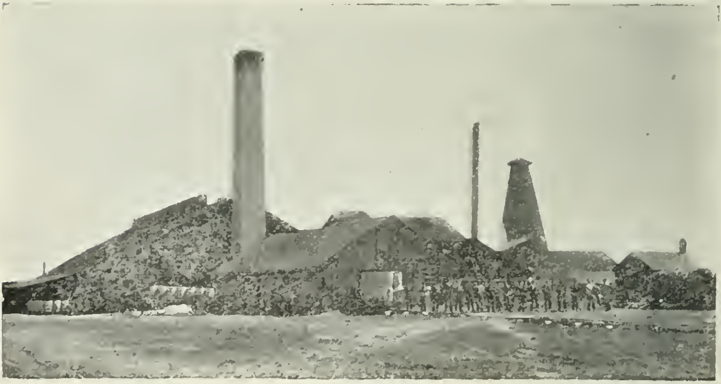


FIG. 70.
Salt works at Goderich, Ont.

Petroleum and Salt. — In this peninsula, near GODERICH, and at WINDSOR, there are wells where *salt* is found in the shape of brine (Fig. 70), which is pumped up into pans. There, the water is evaporated from it, leaving the pure salt at the bottom of the pans. Farther south, and near the point of the peninsula, in the neighborhood of PETROLEA, many wells have been sunk deep into the ground, and from these *petroleum* or coal oil is pumped (Fig. 71). This comes out at first black in color, and requires to be refined, when it becomes the clear oil used for burning in lamps.

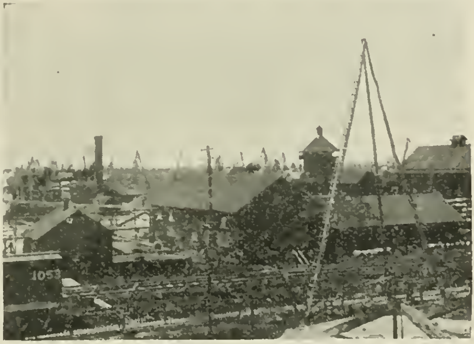


FIG. 71.

Scene at Petrolea, showing oil tanks and derricks used in boring for oil.

Lake Navigation. — You have learnt how Canada is separated from the United States by the Great Lakes and their connecting rivers. On these there are many vessels carrying passengers and cargoes to ports in Canada, and there are also many more belonging to the United States, as that country contains more people than Canada, and the cities there are larger and more numerous. Bridges across the rivers St. Clair and Detroit, between Lakes Huron and Erie, would be apt to obstruct the passage of ships, and yet the railway trains have to pass from one country to the other. The cars, therefore, are ferried over in large steamers or pass under the river through a tunnel from Sarnia to Port Huron (Fig. 72). This tunnel is a great iron tube, nineteen feet in diameter, and with its approaches is nearly two miles long.

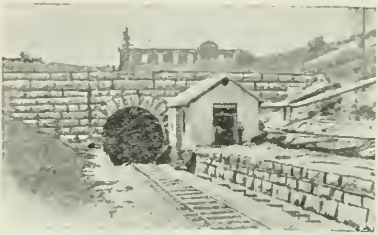


FIG. 72.

Entrance to the Grand Trunk Railway tunnel under the St. Clair River, between Sarnia in Canada and Port Huron in Michigan.

Vessels coming from Lake Superior, after passing the Ste. Marie Canal, or from Lake Michigan, can sail without obstruction to the outlet of Lake Erie, the Niagara River, where the United States city of Buffalo is situated, or to PORT COLBORNE, the entrance to the Welland Canal. But the passage down the Niagara River is stopped by the great cataract of Niagara, 160 feet high (Our Home, p. 47).

At the western end of Lake Erie, you will notice a number of islands. PELEE ISLAND, the largest, belongs to Canada, but the others belong to the United States. These islands are noted for their vineyards and fine fruit.

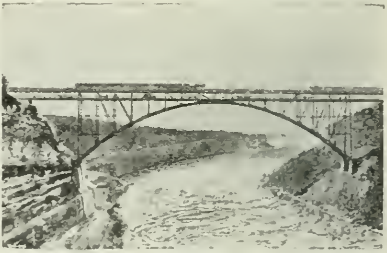


FIG. 73.

New single arch steel bridge of the Grand Trunk Railway, crossing the Niagara River. Note the great Falls in the distance.

To cross the Niagara River between Lakes Erie and Ontario there are several great bridges (Fig. 73). But the difference in the level of the two lakes is 327 feet. In order, therefore, that vessels may pass from one lake to the other, a canal has been built with many locks, so that vessels are lifted or lowered gradually. This is the Welland Canal, the

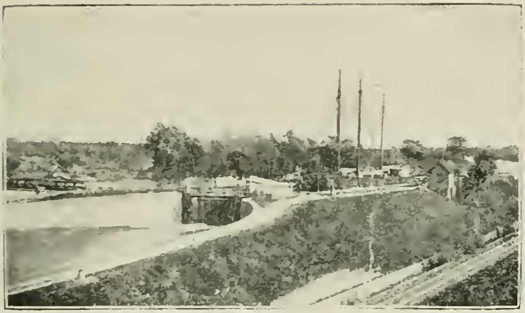


Fig. 74.
View of a steamer and barge in a lock on the Welland Canal.

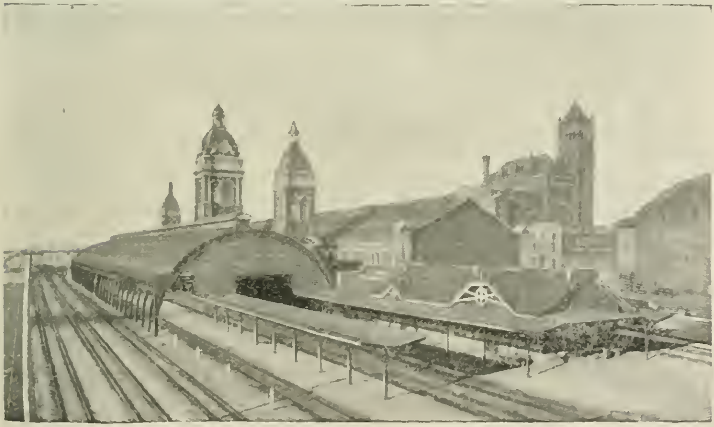


Fig. 75.
View of the Union Station, Toronto.

greatest of all the Canadian canals. It is a little over 23 miles long and has 25 lift locks. St. Catharines is the principal city on the line of the Welland Canal.

Lake Ontario. — As commerce naturally comes to the most convenient place for shipping and receiving goods, so we find that TORONTO on Lake Ontario is the centre of commerce as well as the capital of the Province of Ontario. This is due partly to its good harbor, and partly to its central position, which makes it the meeting-point for a number of railways. Other cities are HAMILTON at the head of the lake, and KINGSTON at the outlet, where the lake empties into the St. Lawrence River. Besides these there are a number of towns on Lake Ontario. Name some of these.

FIG. 76.
View in the Lake of the Thousand Islands.

Along the shores of Lake Ontario and for some distance inland there is a rich farming country, but the land beyond becomes rocky and is more valuable for its timber and minerals. PETERBORO is a central point for a number of railways, and north of BELLEVILLE are extensive iron mines in the neighborhood of MADOC. Here also gold is found, as well as other minerals, such as arsenic and lead.

St. Lawrence River. — The outlet of Lake Ontario is by several channels, expanding into the LAKE OF THE THOUSAND ISLANDS (Fig. 76), one of the most beautiful summer resorts, frequented by thousands of people for its ever varying and picturesque scenery, and for the boating and fishing to be enjoyed there. Rocky and wooded islands of all sizes extend for a distance of more than thirty miles, before the waters narrow to form one grand majestic river. Then follows a succession of fierce rapids, with intervening lake-like expansions, until Montreal, at the head of ocean navigation, is reached.

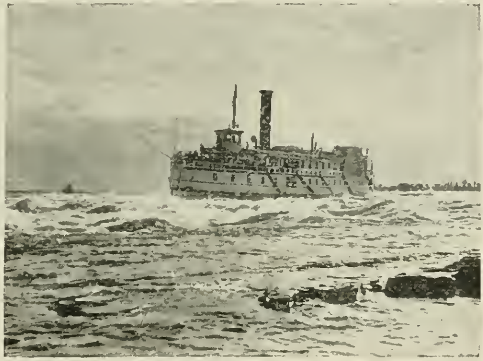


FIG. 77.

View of a steamer entering the Lachine Rapids, above Montreal.

Many steamers run the rapids on their downward trips, but to return must come through the canals which are built to enable vessels to pass round the rapids.

These rapids supply abundant water-power, and consequently many factories are built along the banks of the canals, as at CORNWALL, VALLEYFIELD, LACHINE, and other places.

MONTREAL is the largest city of Canada, and is built on an island at the confluence of the Ottawa and St. Lawrence rivers. Being at the head of navigation, the

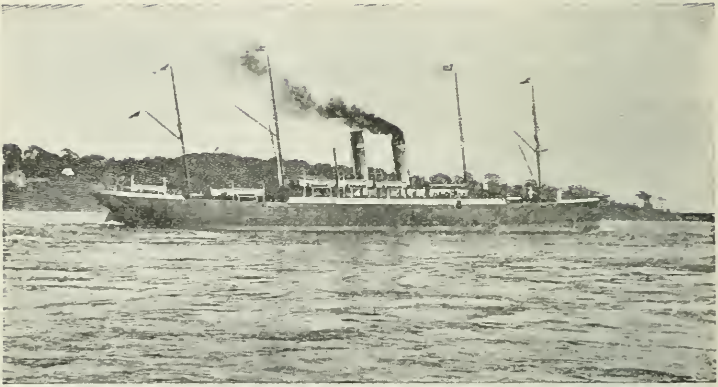


FIG. 78.

Steamship Vancouver, one of the many great steamships carrying Canadian products to Europe from Montreal in summer, and from St. John, N.B., or Portland, Maine, in winter.

highest point to which large ocean steamers can come, on account of the Lachine Rapids, it is, therefore, the point where the greatest exchange of products, imports and exports, takes place (Our Home, Fig. 111).

FIG. 79.

Indian village of Caughnawaga, on the St. Lawrence River, near the Lachine Rapids.

You can form some idea of the importance of farm products in Canada, when you find that, beside what is required for home use, Canada exports every year twenty million dollars worth of cheese, and over five million

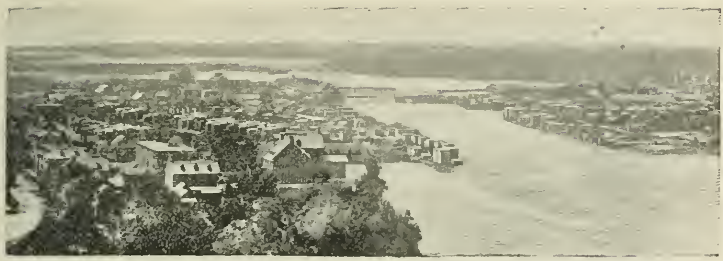


FIG. 80.
View of the lumber piles at Ottawa.

dollars worth of butter, a million and a quarter dozen of eggs, and about thirteen million dollars worth of bacon. In addition to this, the exports of cattle, grain, and fruit amount to nearly forty million dollars. Try if you can reckon all this up.

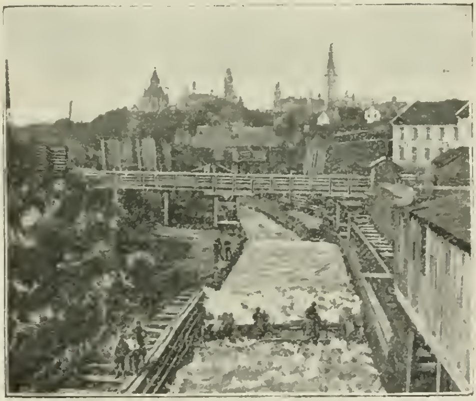


FIG. 81.
A timber-slide at Ottawa. Nearly 4,000,000 pine logs pass down these slides every year.

Here, too, many manufactures are carried on, owing to the cheap and abundant water-power afforded by the Lachine Canal. A few miles above Montreal is CAUGHNAWAGA, the largest Indian village in Canada.

Ottawa River. — This river is the largest tributary of the St. Lawrence, and forms the boundary between Ontario and Quebec as far as Lake Temiscamingue. Trace its course on the map. It is also the most important for the lumber trade, owing to the numerous tributaries which flow into it from the great lumber district. On it is situated OTTAWA, the great centre of the lumber trade of Ontario; and on the opposite bank is HULL, noted for its lumber mills (Fig. 80). A disastrous fire destroyed the whole of Hull and a great part of Ottawa in 1900. To enable the rafts of lumber to pass the Chaudière Falls, at Ottawa, where the river pours over the rocky ledge as into a great caldron, slides have been constructed on both banks (Fig. 81).

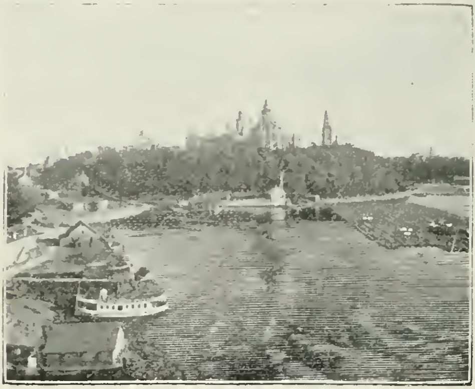


FIG. 82.
View of the Parliament Buildings at Ottawa, taken from the Ottawa River.

But Ottawa owes most of its importance to its being the capital of the Dominion. Here are situated the houses of Parliament, and the great government buildings, where many hundreds of persons are employed in the service of the government. Can you describe some of their work? (Our Home, p. 128.)

French Language. — You are now in the Province of Quebec, and as you have learnt (p. 32), this province belonged originally to France, and most of the people are French and retain their native language; indeed, in many

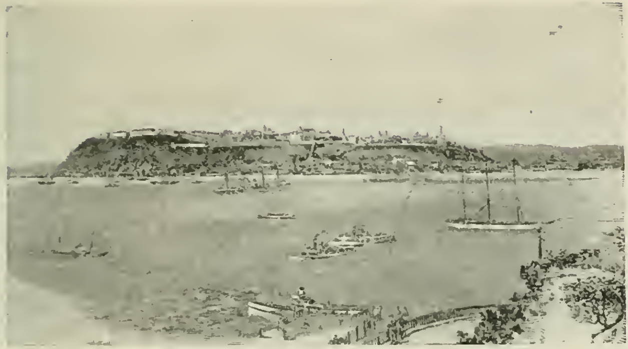


FIG. 83.
View of Quebec from Levis, showing the citadel.

parts of the province no other language is spoken. In the Dominion Houses of Parliament as well as in the Houses of Parliament for the Province of Quebec, French is spoken as well as English.

Quebec. — One hundred and eighty miles below Montreal is Quebec (Fig. 83), the capital of the province, with its citadel and many quaint old buildings, associated with stirring historical memories. On the heights above Quebec occurred the last memorable battle between the French

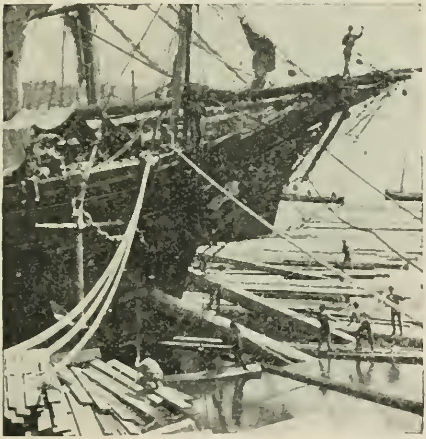


FIG. 84.
Loading timber at Point Levis, opposite Quebec. Note how the long sticks of timber are loaded through ports in the bows of the vessels, which are afterwards carefully secured before going to sea.

and British, when both generals Wolfe and Montcalm were killed. Here a monument is erected to their memory (Fig. 85). At Quebec a large amount of shipping is done. At LEVIS, on the opposite side of the river, the greater part of the square timber brought down the St. Lawrence in rafts is loaded on sailing ships for Europe (Fig. 84). As the river is frozen up in winter, the ports of Quebec and Montreal are closed to vessels during that season.

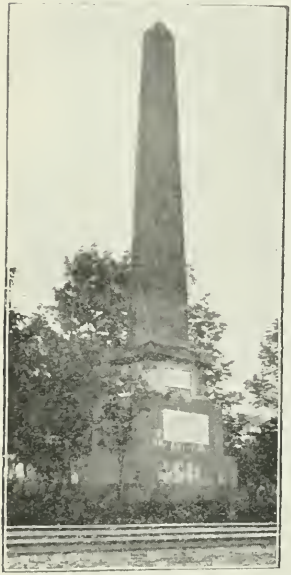


FIG. 85.
Monument to Wolfe and Montcalm, Quebec.

Tributaries of the St. Lawrence. — Above Montreal the streams which flow into the St. Lawrence other than the Ottawa River are not important, but between Montreal and Quebec there are several large tributaries. Naturally these have determined the situation of the principal towns, either at the junction with the St. Lawrence, or at the falls in their courses, where the water-power is available for manufacturing purposes. Such are SOREL, THREE RIVERS, ST. HYACINTHE, SHERBROOKE, and ST. JOHN'S.

Lumbering in Eastern Quebec. — Passing beyond Quebec you will notice that there are fewer names on the map and you will judge, therefore, that the country is less settled, and this is the case. Lumbering and fishing form the principal occupations of the people. On the north shore the land is bleak and barren, but produces a great deal of valuable timber, which, in the shape of logs, is floated down to the sawmills, generally situated near the mouths of rivers as at THREE RIVERS and TADOUSAC; or it is made into pulp for making paper as at GRAND MÈRE on the St. Maurice (Fig. 87) and other places.

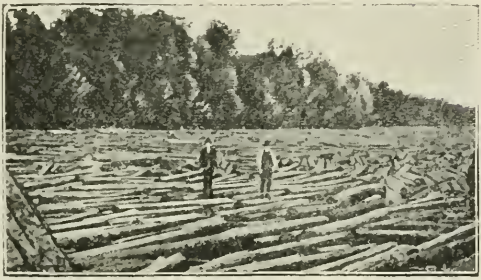


FIG. 86.
Log jam on the St. Maurice River.

On the south shore the land is better fitted for cultivation, but below RIVIÈRE DU LOUP the mountains approach so close to the shore, that settlements, chiefly of fishermen, are only to be found in the coves formed by the valleys.

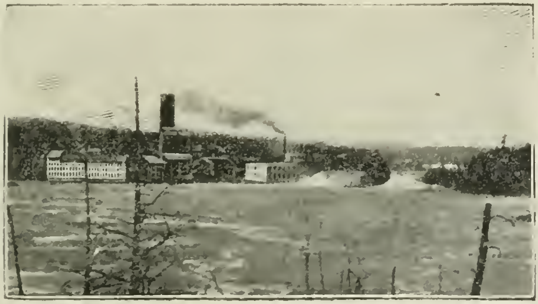


FIG. 87.
View of wood pulp mill at Grand Mère on the St. Maurice River, Quebec.

Summer Resorts. — The sinking of the land which has formed a passage for the St. Lawrence River has allowed the salt water of the ocean to enter the hollow, so that the tide flows into the Gulf of St. Lawrence and up the river as far as THREE RIVERS, seventy miles above Quebec. The water at Quebec is, therefore, salt although there is so much fresh water pouring into it; and there are several places on the river which have become favorite resorts for summer salt-water bathing, such as MURRAY BAY (Fig. 88), and CACOUNA, near Rivière du Loup.

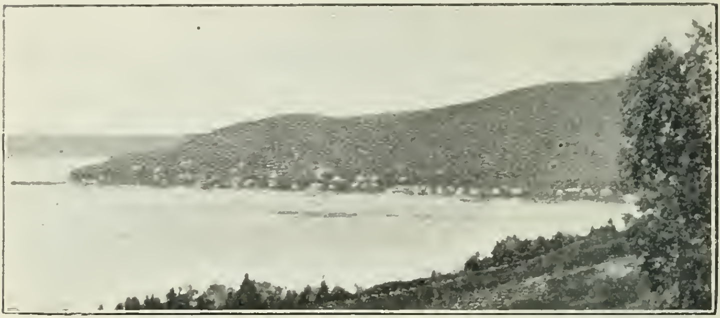


FIG. 88.
View of Murray Bay, a summer resort on the St. Lawrence.

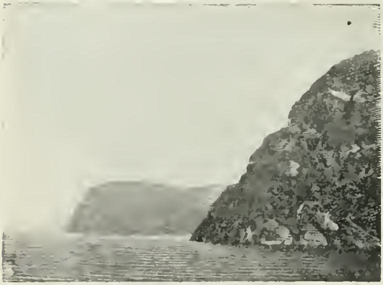


FIG. 89.
Trinity Rock and Cape Eternity, on the Saguenay River.

The Saguenay River. — This is also a far-famed resort for tourists on account of its majestic scenery, as the river flows through a deep gorge, where the land has sunk away to a great depth, leaving dark frowning precipices on each hand. The Saguenay and most of the rivers flowing into the St. Lawrence below Quebec, as far as Labrador and Cape Breton, are noted for salmon fishing (Fig. 90), and are frequented by many sportsmen during the season (p. 41).

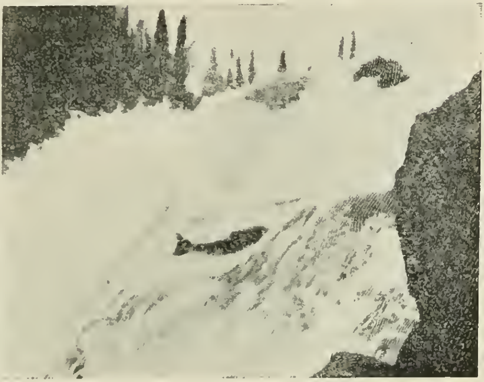


Fig. 90.
A Labrador salmon clearing an 18-foot waterfall.

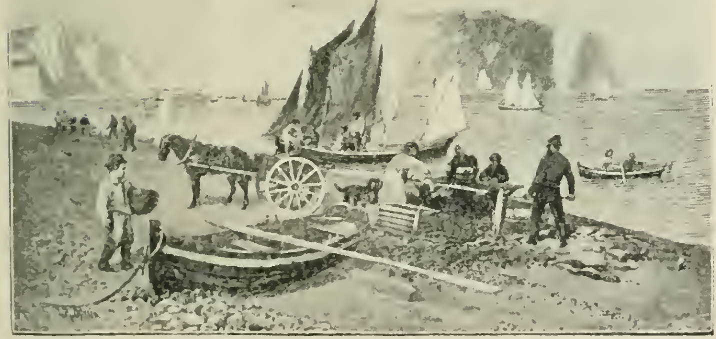


Fig. 91.
On the beach at Percé, Que. Note the peculiar wearing away of the Percé Rock.

Gulf of St. Lawrence. — Passing from the great river, which increases in extent till it is about fifty miles wide, the Gulf of St. Lawrence is reached, famous as one of the greatest fishing grounds in the world. Here cod, haddock, halibut, herring, and mackerel are caught in enormous quantities. About 20.000 persons are employed in catching and canning lobsters alone, of which more than 10,000,000 cans are put up every year, besides those shipped fresh to all parts of Canada and to the United States. You have seen cans of lobster in the grocery stores; how long would it take to count ten millions of them?

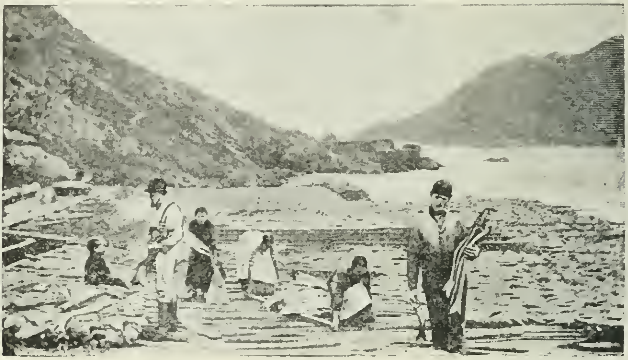


Fig. 92.
Scene on the Labrador coast, curing fish in summer.

Fig. 93.
View on the Bird Rocks, near the entrance to the Gulf of St. Lawrence. Note the numerous gannets, sea-fowl which nest there and live on fish.

The extreme eastern strip of the coast of the Province of Quebec and of the Territory of Ungava is called Labrador, and extends north from the Strait of Belle Isle to Hudson Strait. This is under the government of Newfoundland, and thousands of persons, men, women, and children, come there every summer from Newfoundland for the purpose of catching fish, which they cure, that is, salt and dry them (Fig. 92). After being cured, they are packed in bales or bundles for shipping away. You have probably seen bundles of dried salt codfish at the grocery stores. Except at that season of the year, the whole land north of the Gulf of St. Lawrence is but little inhabited save by a few Indians and Eskimos.

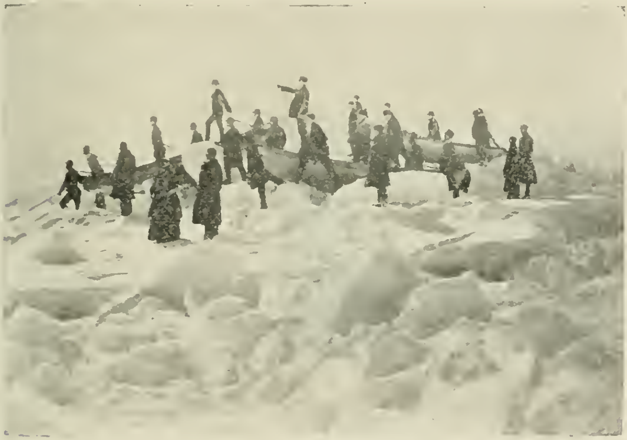


FIG. 94.

Crossing on the ice in Northumberland Strait, between Cape Tormentine, N.B., and Cape Traverse, P.E.I.

You will notice, opposite the mouth of the river, the large island of Anticosti. People have tried at different times to make a settlement on it, but these attempts have not hitherto been successful. This is partly owing to its desolate and lonely character, and to its dangerous, rocky shores: and partly to its being surrounded by ice for months every year, during which time no person can either leave it or land on it. Both here and at the Magdalen Islands, fishing is carried on in the summer season.

You can now reach the Atlantic Ocean by passing north or south of the great Island of Newfoundland, which stands, like a protector, at the mouth of the Gulf. Steamships from Quebec, bound for Europe, often take the narrow northern passage by the Strait of Belle Isle, because it is the most direct course. This, however, is dangerous, owing to the frequent fogs, and to the icebergs which are brought down by the cold Labrador current from Baffin Bay (Fig. 95).

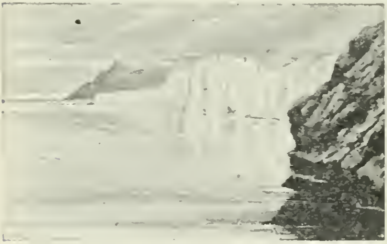


FIG. 95.

A glacier in Baffin Bay descending to the water's edge, where great masses become broken off, forming icebergs.

How far is it, measuring by the scale of miles on the map, from our starting-point at the head of Lake Superior to the Strait of Belle Isle, by the course we have followed?

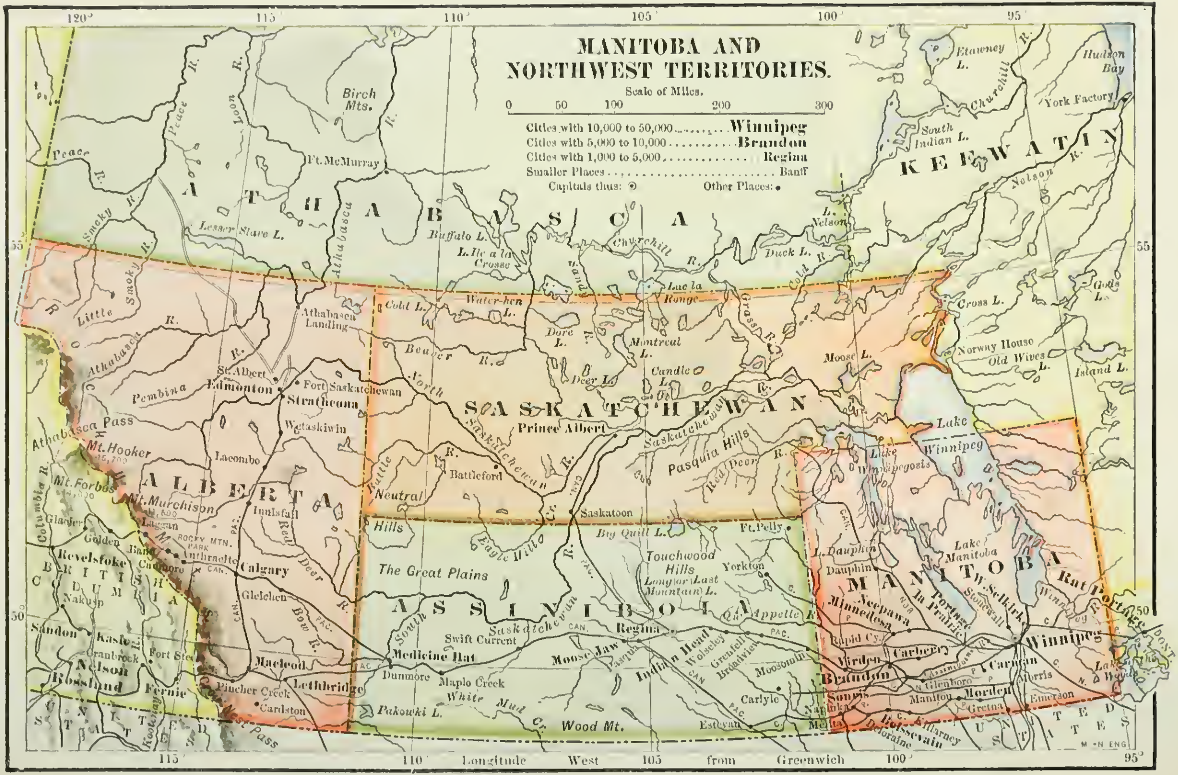

MANITOBA AND NORTHWEST TERRITORIES.
Scale of Miles.
0 50 100 200 300
Cities with 10,000 to 50,000 Winnipeg
Cities with 5,000 to 10,000 Brandon
Cities with 1,000 to 5,000 Regina
Smaller Places Banff
Capitals thus: ⊙
Other Places: ●
ATHABASCA
SASKATCHEWAN
ALBERTA
ASSINIBOIA
MANITOBA
KEEWATIN
BRITISH COLUMBIA
UNITED STATES
Hudson Bay
York Factory
Churchill
Nelson R.
Lake Winnipeg
Lake Manitoba
Lake Winnipegosis
Winnipeg
Brandon
Regina
Edmonton
Calgary
Prince Albert
Saskatoon
Medicine Hat
Moose Jaw
Lethbridge
Macleod
Battleford
The Great Plains
Pasquia Hills
Touchwood Hills
Wood Mt.
Athabasca Pass
Crow's Nest Pass
Mt. Hooker
Mt. Murchison
Mt. Forbes
Birch Mts.
Ft. McMurray
Athabasca Landing
Lesser Slave L.
Peace R.
Smoky R.
Saskatchewan
Longitude West 105 from Greenwich
120° 115° 110° 105° 100° 95°
55 50

Fig. 96

XI. MANITOBA AND THE NORTH-WEST TERRITORIES

Map Questions. — (1) Name the four organized Districts, as shown on the map. (2) Name the five unorganized Districts (Map, Fig. 34). (3) Which border on the Province of Manitoba? (4) Which on the United States? (5) Which on Hudson Bay? (6) Which on British Columbia? (7) What mountains are in the west of these Districts? (8) Judging from the rivers, in which direction is the principal slope in the southern part? (9) How is it in the north-western part? (10) In the unorganized districts in the centre? (See Fig. 34.) (11) Name the principal rivers showing these slopes and state into what waters they flow. (12) What large lakes are in this region? (13) What is the capital of Manitoba? — Of the four organized Districts? (14) How are these capitals situated?

Extent of the Country. — You will easily see by the map (Fig. 34) how great is the extent of this central and northern country, compared with that of the older Provinces of the Dominion. Manitoba and the four organized Districts comprise as large a territory as all the eastern Provinces put together. Yet the country is still but thinly peopled, and it is for this reason that it is divided up into Districts (see p. 36).

The people in the districts outside of Manitoba, being so scattered and so few in number, are not able to provide for the necessary expense of carrying on the government of the country. This is, therefore, undertaken by the Dominion Government at Ottawa. As soon, however, as any District becomes sufficiently populous, it is organized, as it is called, and power is given to the people to elect members to a legislative assembly, where laws may be passed concerning local affairs. This is the case with THE NORTH-WEST TERRITORIES, which comprise the Districts of Alberta, Assiniboia, Saskatchewan, and Athabasca. The capital of these united Districts is REGINA. In course of time the North-West Territories will become a Province of the Dominion.

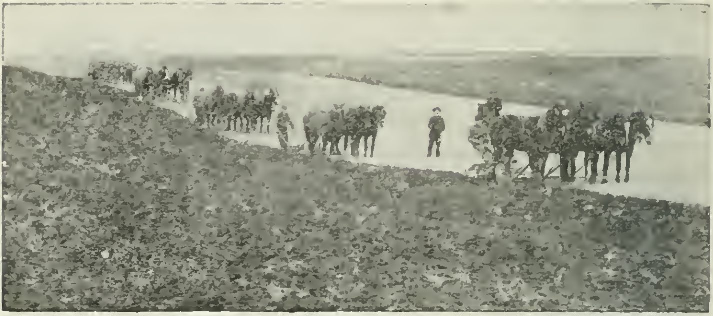


FIG. 97.

A ploughing scene on the prairie in Manitoba.

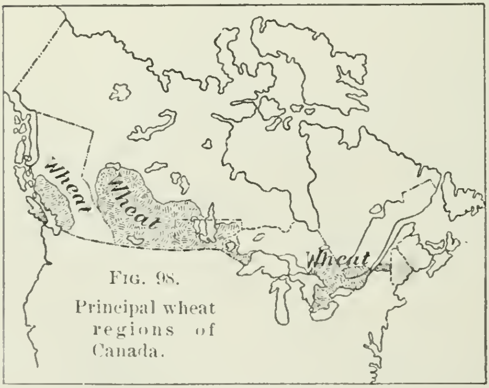


FIG. 98.

Principal wheat regions of Canada.

Reasons for so Few People. — As the eastern part of the Dominion was the first to be reached by immigrants coming from Europe, it was natural that the first settlements should be made there. Enterprising fur-traders, or great companies, like the Hudson's Bay Company, might penetrate into the almost unknown western country to trade for furs, of which a large value might be contained in small bulk: but of what use to farmers would this country be, no matter how fertile it might be, if they could not get their grain or cattle to market? It was necessary then, in order to open up the country, to provide means for transportation, and so the Canadian Pacific Railway was built, forming a connecting line between the Atlantic and Pacific Oceans, and affording an outlet for the products of the fertile prairies of the north-west.

FIG. 99.

A reaping scene on the prairie in Manitoba.

Just as, in the earlier days of Canada, the first settlements were made where communication was most easy — on the coast or lake shore, or on the great rivers — so the principal towns and settlements in the north-west are found along the line of the railway or its branches. In the same way the largest settlements are located in the eastern part of this territory, in the Province of Manitoba, because this was the first part reached. Here WINNIPEG, which thirty years ago had a population of only 240, has now over 40,000 inhabitants, and is the main point for distributing goods throughout the whole territory. In 1870 when the Province of Manitoba was organized, the whole white population did not number more than 1000 persons. Now it is 250,000.

FIG. 100.

Flour mill and elevator at Portage la Prairie.

Farming. — What is the inducement that attracts people to Manitoba and the North-West? This is found in the remarkable fertility of the soil, more especially in the great southern valleys. Through these the Saskatchewan, Assiniboine, and other rivers flow eastward, and the Red River northward from the United States, into the great lakes of Manitoba. What are the names of these lakes? To what other great valley or river system could you compare this in the eastern Provinces (Our Home, p. 45) and in the United States (Our Home, p. 29)?

Lake Winnipeg is very nearly as large as lake Erie, and the Manitoba Lakes are famous for their whitefish, which are shipped in refrigerator cars to the other provinces and to the United States. SELKIRK is the chief centre for the fishing industry.

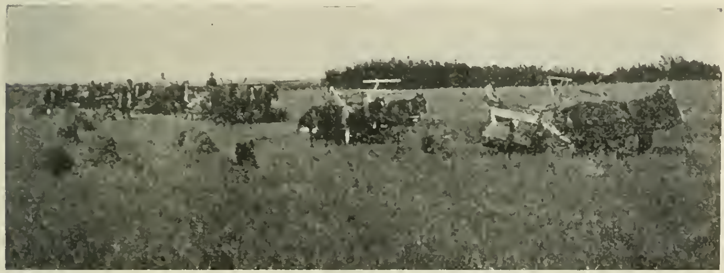


FIG. 101.

Harvesting at Indian Head, Assa., N.W.T.

As you have learnt, the richest and deepest soil is found in the river-valleys, and this is the case here. There are no forests to be cleared as in the east, for the country is all open, grassy land, called *prairie*, requiring only to be

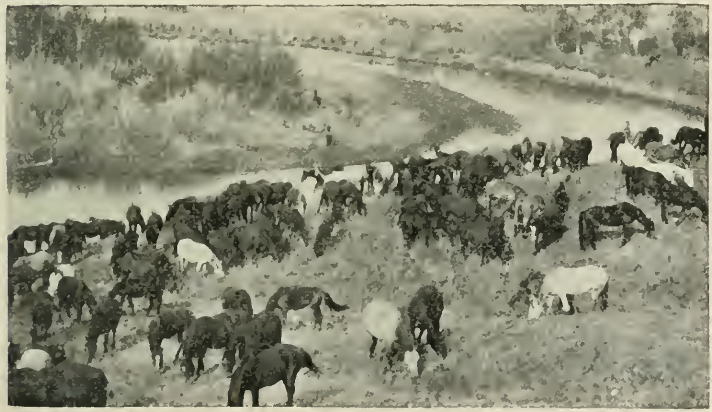


FIG. 102.

Horse-ranch on the Bow River in Alberta, N.W.T.

ploughed and sown to produce an abundant crop of wheat, oats, and barley, or of potatoes and other roots. As a natural consequence, storehouses and elevators are required to receive this produce, waiting for shipment by the railway; and many towns and villages such as BRANDON and PORTAGE LA PRAIRIE, have sprung up as centres to which the neighboring farmers may bring their produce. Tell where some of these are situated.

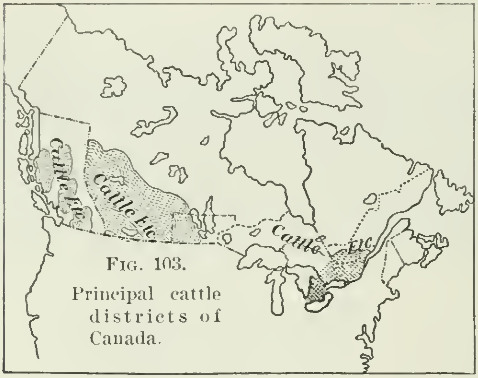


FIG. 103.
Principal cattle districts of Canada.

Railways. — Twenty-five years ago there were no railways in Manitoba. Now, by a glance at the map, you will see that it is covered by a perfect network of lines. These have become necessary in order to carry off the abundant crops. In August it is a marvellous sight to view the miles of golden grain extending as far as the eye can see.

FIG. 104.
Horse round-up at Elbow River, Calgary, N.W.T.

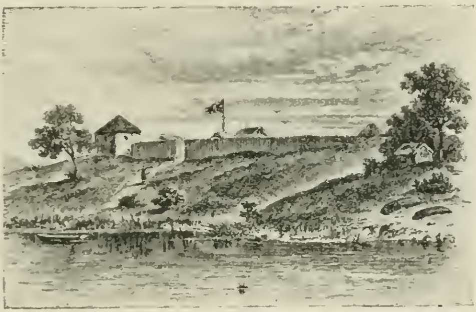


FIG. 105.
View of Fort Douglas, an old fort of the Hudson's Bay Company, on the Red River.

Cattle-Ranching. — In the western part of this great southern valley, or basin, which rises almost like a succession of broad terraces to the foot of the Rocky Mountains, the climate is much drier, owing to the winds having lost most of their moisture: those from the Pacific Ocean in crossing over the Rocky Mountains, and those from the east and from the Gulf of Mexico scarcely reaching so far inland. But if this is unfavorable for farming, it is excellent for raising cattle, horses, and sheep, as the prairie is covered with grass, which furnishes them with abundant food. The snowfall in winter, like the

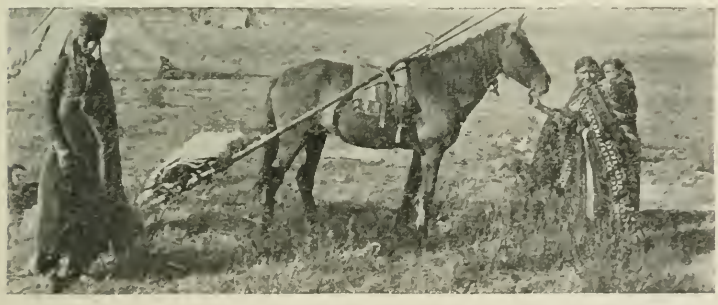


FIG. 106.
Cree Indians with pony and traverse.

rainfall in summer, is light also from the same causes, and the animals can find their own fodder out on the prairie all the year round, as far north as the Peace River.

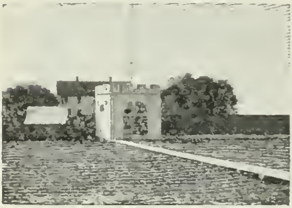


FIG. 107.
The last of the old Hudson's Bay Company's Fort Garry at Winnipeg.

In southern Alberta, in order to overcome the dryness of the atmosphere, irrigation is resorted to, and LETHBRIDGE is the centre of an important irrigation system.

As a consequence of the dryness of the climate in Manitoba and the North-West Territories, the cold in winter, although severe, is not felt nearly so much at the same degree of temperature as it would be nearer the coast.

The section of land over which a man's cattle roam is not called a farm, but a *cattle-ranch* and the business is known as *ranching*. The towns which are the principal centres of the cattle industry, are CALGARY and EDMONTON. At the latter place the Hudson's Bay Company still carries on a large fur-trade.

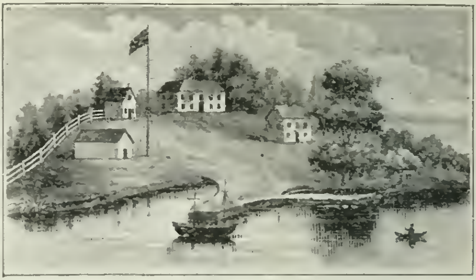


FIG. 108.
An old view of York Factory, on the Nelson River, Hudson Bay.

Hudson's Bay Company. — The whole of this great country, including Manitoba and the Territories, organized or unorganized, was formerly under the control of a trading company, called the Hudson's Bay Company.

which built trading-posts, which were named *factories* or sometimes *forts*, at a great many places, where it kept blankets, guns, powder, flour, provisions, and many other articles to trade with the Indians for furs. Most of these forts still remain, but as the country has become settled, fur-bearing animals have grown less numerous, and some of the forts have been abandoned. A steamship comes every year from London to York Factory on Hudson Bay, and two sailing ships to Moose Factory, to bring supplies and take back the furs. Although this is rather a dangerous voyage, it is the shortest and cheapest way to reach this distant country. From York and Moose Factories the stores are distributed all over the country by bateaux, by way of the Nelson and other rivers, and through the lakes as far as the Mackenzie River. Trace the course on the map from York Fort by the Nelson, Saskatchewan, and Mackenzie Rivers to Fort McPherson. (Map, Fig. 34.)

Indians. — The country was then inhabited by many tribes of Indians, who were generally friendly to the traders of the Hudson's Bay Company, but often hostile and treacherous to any other white men, who ventured among them, and were frequently at war with each other (Our Home, p. 94). They were, however, much more peaceable than the tribes the early settlers had to encounter in the east.

The Canadian Government has always treated the Indians justly, and great blocks of land, called "Indian Reserves," have been set apart for them in different parts of the North-West. There the Indians live, and carry on a little farming, in addition to hunting. Some of them also receive a small annual grant of money and goods from the government.

Fur-Trade. — Up to about thirty years ago, this great land was looked upon as valuable only for its fur-bearing

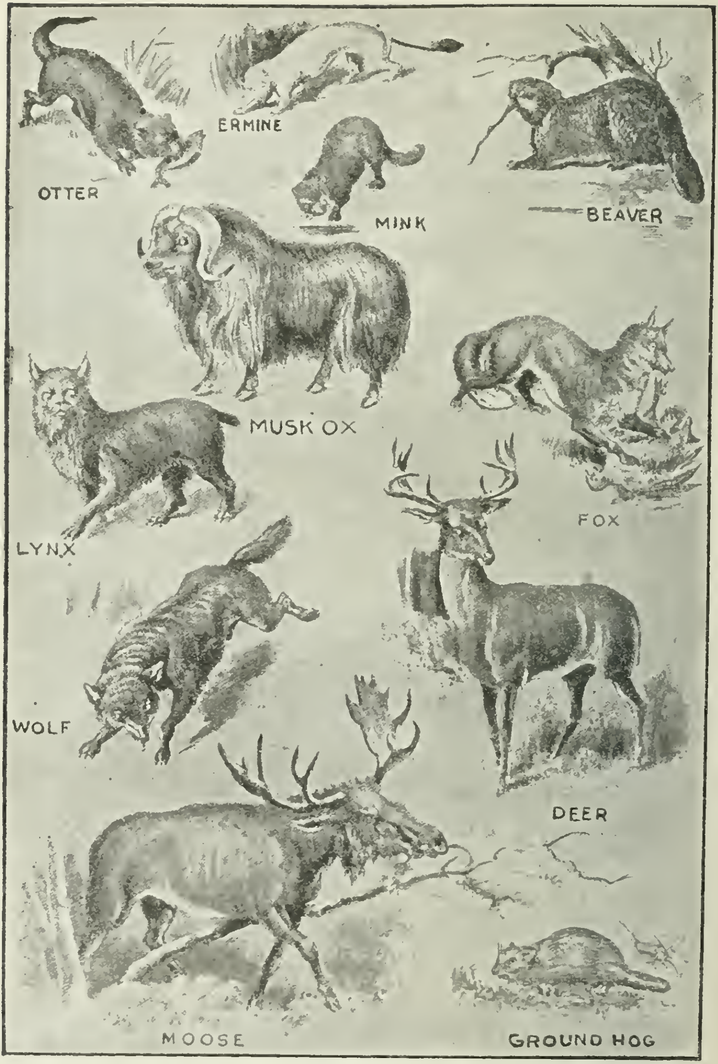


Fig. 109.
Some of the wild animals of Canada.

animals, which were trapped by the Indians, who brought their skins to the Hudson's Bay Company's forts for sale. It was a summer holiday for the people of Fort Garry, which is now the large city of Winnipeg, to turn out for the great buffalo hunt. They would camp out on the plains for weeks or months killing buffalo for their skins, and perhaps making a little pemmican, the hunter's food, out of the dried meat and melted fat of the animals. Now the buffalo has disappeared, except a very few that are still said to be found in their wild state near the Rocky Mountains. and a few that are kept in private herds. Naturally, as the land becomes settled, the fur-bearing animals become more scarce; but the extent of the country

FIG. 110.

View in the Rocky Mountain Park. The Bow Valley, from Upper Hot Springs, Banff, Alta.

is so great that the fur-trade is still of much importance. Some of the animals of this region are shown in Figure 109.

Rocky Mountain Park. — This is a tract of land situated in the Rocky Mountains in western Alberta (Fig. 110), which has been set apart by the Dominion Government as a national pleasure ground, where, however, no hunting is allowed. For natural beauty of scenery, — mountain, lake, and river, — it is justly noted, and it is visited every year by hundreds of travellers.

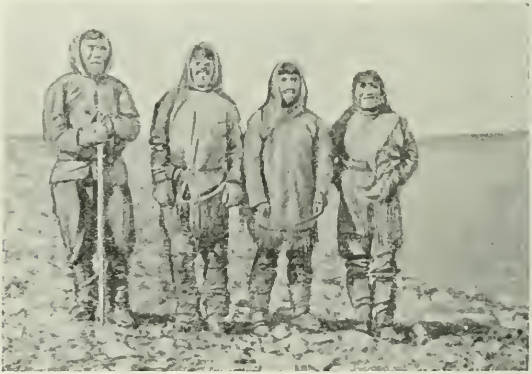


FIG. 111.
Eskimos near the mouth of Doobaunt River, Mackenzie Territory.

The park is 26 miles long, and 10 miles wide, and in it is situated Banff, a station and a health resort on the Canadian Pacific Railway, near the hot Sulphur Springs (Our Home, Fig. 21, p. 23). The surrounding mountains rise to a height of nearly 10,000 feet, and abound in wild game, bear, elk, caribou, and big-horn sheep.

Provisional Districts. — The Districts of KEEWATIN, MACKENZIE, and UNGAVA are only inhabited by a few

Indians and Eskimos, with here and there a Hudson's Bay Company's fort at long intervals. The District of FRANKLIN consists of uninhabited ice- and snow-covered islands in the Arctic Ocean.

In the southern part of these Districts there are some farming lands and valuable forests, but toward the north these give way to the "Barren Lands," the haunt of the caribou and musk-ox (Fig. 112). At the extreme north the land consists of tundra, or frozen swampy plains, bordering on the Arctic Ocean.

FIG. 112.
A herd of caribou in the Barren Lands.

The statements made on pages 89 and 90, in regard to cattle ranching, would seem, within the last few months, to require some modification. The spread of irrigation and increased knowledge of farming operations have rendered suitable for the growing of grain a great deal of land, which was formerly considered useful for ranching purposes only. This is especially true of the district in the Northwest Territories, south of the Canadian Pacific Railway. In this portion of the country the settlement has been so rapid that the ranchers are being gradually pushed north.

XII. BRITISH COLUMBIA AND YUKON TERRITORY, THE FAR NORTH AND GREENLAND

Map Questions (Fig. 34). — (1) In what direction do the mountains of British Columbia generally extend? (2) Name the two principal ranges. (3) What rivers flow southward between these ranges? (4) What rivers pass through the Rocky Mountains eastward? (5) Of what great river are the latter tributaries? (6) What great river has its source in the north? (7) Into what country does it flow? (8) Make a drawing of the principal mountain ranges and rivers. (9) How far is it across British Columbia (see scale on map)? (10) How far from north to south? (11) What shape has the Yukon Territory? (12) What large island forms part of British Columbia? (13) How is it separated from the mainland? (14) Compare the coast with that of Nova Scotia, and state wherein the difference lies. (15) What does the coast suggest about harbors? (16) Where are Victoria, Vancouver, New Westminster, Nanaimo and Dawson situated?

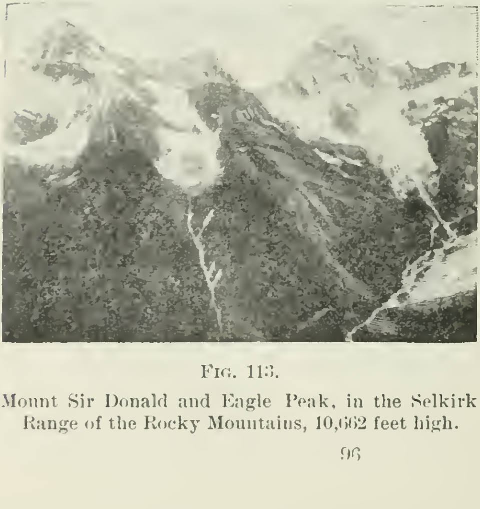


Fig. 113.

Mount Sir Donald and Eagle Peak, in the Selkirk Range of the Rocky Mountains, 10,662 feet high.

Mountains. — A glance at the map will show that this great country is apparently covered with mountains. The two principal ranges are, respectively, in the east and west (*name them*), and between them are several shorter ranges. You can trace them by the courses of the rivers, which flow between. The mountains of British Columbia are the continuation of chains in the United States and extend to the Arctic Ocean and to Behring Sea. They are sometimes called the Western Cordilleras, a Spanish word, meaning long continuous ranges.

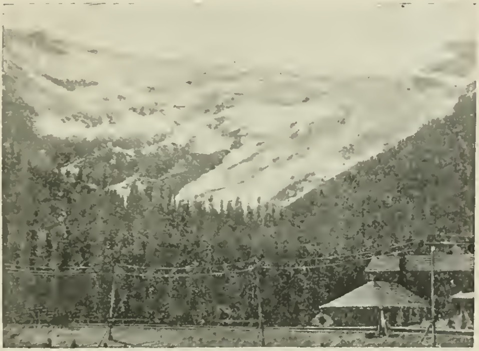


Fig. 114.

View of the Great Glacier in the Selkirk Range of the Rocky Mountains. Note the railway station at the foot of the mountain.

Some of these mountains, unlike those you have hitherto studied, are more than two miles high, and many are, for this reason, covered with snow all the year round. In the high valleys between the lofty mountain peaks there are many *glaciers*, which are enormous rivers of ice of great depth. Although these glaciers may thaw to some extent under the summer sun, and thus become the sources of many mountain streams, they never seem to diminish in extent. To compare the mountains about which you have hitherto learnt with these mountains of the west, would be like comparing a little cottage to a great church.

Farming and Navigation. — You have already learnt that where there are mountains, the soil is not favorable for farming or cattle raising, and so you will generally find it here. But there are many valleys between these mountains which are very fertile and suitable for farming. Extensive pastoral lands also are found in the interior, both in the north and south. In the lower valley of the Fraser River and in the southern part of Vancouver Island, alluvial or flood plains have been formed, where the same fruits and grains are grown as in Southern Ontario. VERNON and KAMLOOPS in the southern interior are the principal agricultural towns. NEW WESTMINSTER, VICTORIA, and VANCOUVER are the chief markets for farm-products.

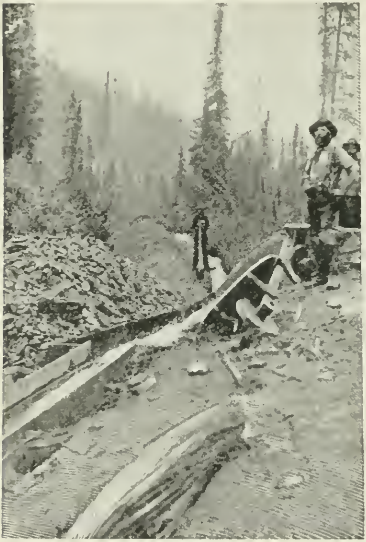


FIG. 115.

Sluicing on Bonanza Creek, Yukon Territory, showing mode of washing gravel containing particles of gold.

At this point $8000 was taken out of a hole, 14 ft. wide by 24 ft. long.

You have also learnt that navigation on rivers among mountains is almost impossible, owing to the rapids and falls; and that it is difficult to make roads, owing to the rocky, uneven land. Hence, communication is slow and full of danger. What then was the attraction that drew people to this country?

Gold Mining. — The answer is not hard to find. Both British Columbia and the Yukon Territory contain valuable deposits of *gold* and other minerals.

When gold was first discovered in the Fraser and

Thompson rivers, news of the discovery spread quickly throughout the world, and men hastened to the gold fields by thousands. At that time there was no railway across the Dominion, and the gold seekers had to travel overland through the United States, or sail round Cape Horn, or cross the Isthmus of Panama to the Pacific coast. There they would take a steamer to Victoria, then afterwards make their way to New Westminster and up the Fraser River as best they could, in small steamers or boats. Many were the hardships they had to encounter in order to reach the locality where the precious metal was to be found.

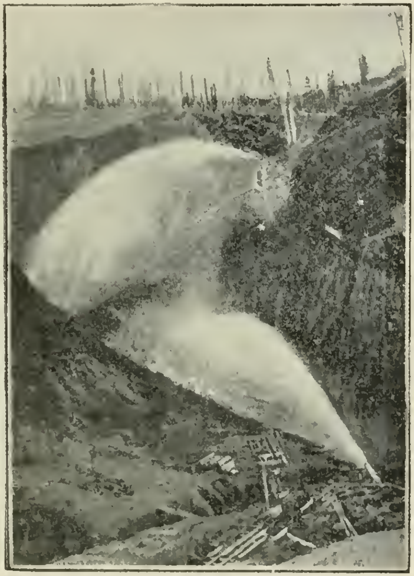


FIG. 116.
Hydraulic mining with monitors in the Cariboo District, near Quesnel Lake, B.C.

The method of mining, as it may be called, was at first, and until quite recently, what is called *placer-mining*; that is, the gold was found in the beds of rivers or streams, or in gravel beds. The miners washed the gravel or dirt in pans or sluice-boxes (Fig. 115). The gravel and earth were washed away and the bits of gold, being heavier, remained at the bottom. These sluice-boxes had pieces of wood fastened across the bottom, against which the particles of gold were deposited.

As soon, however, as the railway was built, so that machinery could be brought into the country, the process called *hydraulic* mining was adopted (Fig. 116). By this plan water was brought in pipes, and directed against the face of the hills as if through a giant fire-hose, washing away the gravel and earth in the same manner as washing in the simple trough, but on a greater scale.

FIG. 117.
Smelter at Traill, B.C. Here gold, silver, copper, and lead are smelted.

Later on, gold and also other minerals, silver, copper, and lead, were discovered in lodes or veins in the mountains. Then mines were dug in the mountain sides, tunnels were made and shafts sunk, and the ore, that is, the gold mixed with rock, was blasted out. After being crushed in the *stamping mill* the gold was extracted by means of mercury, which has the power of attracting the particles of gold to it. Usually, however, the ore contained the gold so finely distributed through it that it had to be taken to the *smelter*. Here it was smelted and purified from the dross, in the same manner as you have learnt about iron (p. 45). This is called *quartz mining*.

The principal mining centres are in the Kootenay Districts in the south, where ROSSLAND and NELSON are the largest towns. Minerals are, however, found in every part of the province, both on the mainland and on Vancouver Island. Mining and prospecting are carried on in many districts.

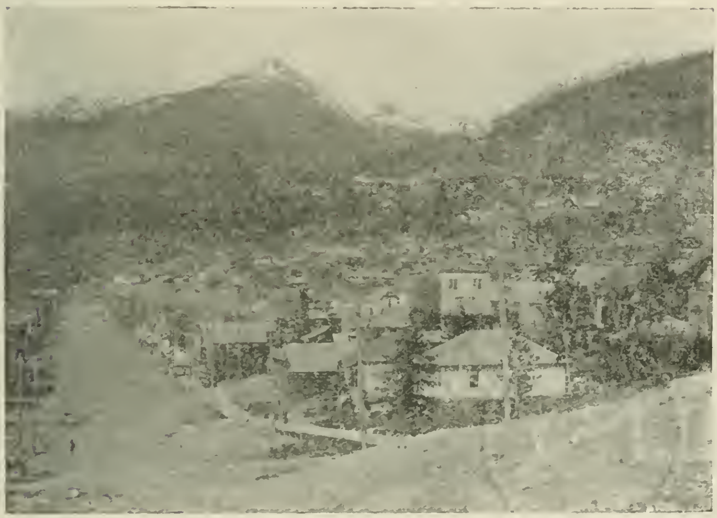


FIG. 118.

View of Rossland, B.C., the centre of the gold mining region of British Columbia.

Coal Mining. — Still better to develop the resources of this country, vast deposits of coal have been found, both on the mainland and on Vancouver Island. The coal mines at and near NANAIMO in Vancouver Island turn out more than a million tons every year, and the extent of the mines of the CROW'S NEST PASS on the mainland is as great as any in the world.

Most of the coal used in the smelters is made into coke, as a more intense heat can be got from coke than from coal, and it is therefore better for smelting.

Coke is coal highly heated to drive off the gases, generally in ovens from which the air is almost entirely excluded. Coke will burn without flame or smoke.

Besides being useful for smelting ore, the coal mines are valuable for supplying the wants of the railways and steamships. Great quantities are exported to the cities of the United States along the Pacific coast for this purpose.

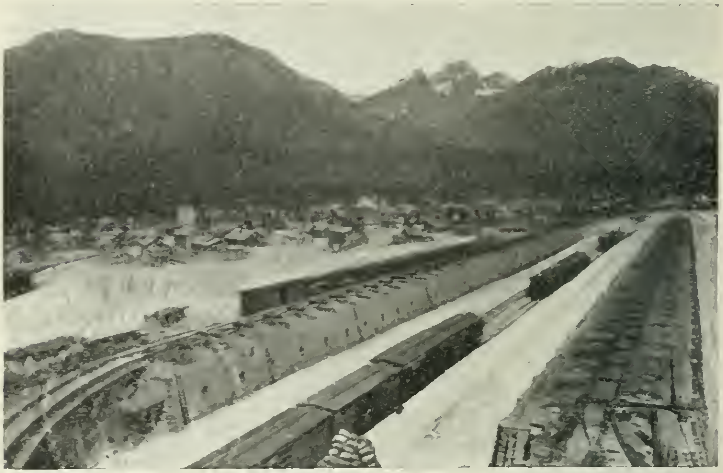


FIG. 119.

View of the coke ovens, at Fernie, B.C.

The Canadian Pacific Railway. — When British Columbia was admitted as a province of the Dominion of Canada, one of the first things necessary was to connect it with the Eastern Provinces. This was brought about by the building of the Canadian Pacific Railway, which now extends in one continuous line from Vancouver in British Columbia to St. John in New Brunswick, a distance of 3400 miles: passing in its course through the wild gorges and cañons (*can-yons*) of the Rocky Mountains, the fertile plains of Manitoba and the North-West Territories, the rocky scenery north of the Great Lakes, the lumbering regions of the Ottawa, the busy cultivated Eastern Townships (the district east of the St. Lawrence River), the lumbering country of New Brunswick and the lovely valley of the St. John River. Trace its course in the map, noting Vancouver, Kamloops, Revelstoke, Banff, Calgary, Medicine Hat, Moose Jaw, Regina, Winnipeg, Port Arthur, Sault Ste. Marie, Ottawa, Montreal, Sherbrooke, St. John, and state where each of these places is situated.

The natural result of the building of the railway was to increase the immigration and promote the settlement of the country through

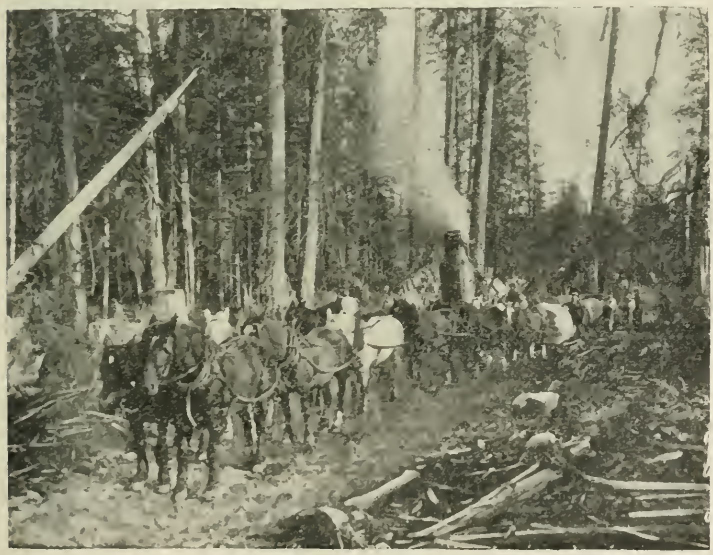


FIG. 120.
Hauling timber in British Columbia.

which it passed. Although the railway was only completed in 1885, many thousands of persons have become settlers along the line, and many more have passed on beyond to the gold fields of the Yukon Territory. There are also many Chinese and Japanese in British Columbia, the former chiefly engaged in laundry and domestic work, the latter in the fisheries and boat-building.

Timber. — The mountains of British Columbia are not alone valuable for their wealth under the surface of the ground, but also for that on the surface — the immense forests. The finest timber is found on Vancouver Island, along the coast of the mainland, and on the western slopes of the Rocky Mountains. There the trees grow to an enormous size, the largest several hundred feet high, and from forty to fifty feet in circumference (Fig. 121). The reason for this luxuriant growth is, that the winds from the Pacific Ocean strike there first, and the large amount of moisture they contain becomes condensed into rain, by which the growth of the trees is rendered more vigorous.

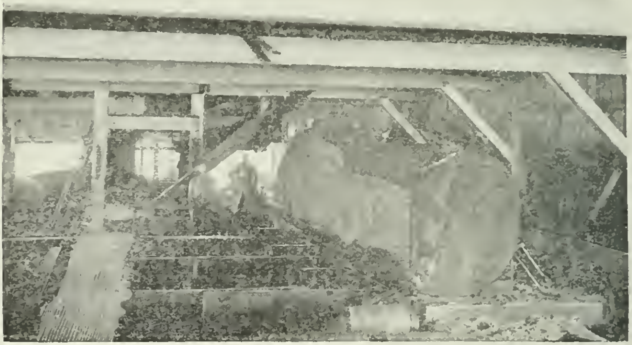


FIG. 121.

Royal City sawmills, New Westminster. Cutting a large log.

Vancouver Island. — It is only a little over a hundred years ago since Captain Vancouver surveyed the island in the name of Great Britain, and Spain relinquished all claim to it. It is now most important, because on it is VICTORIA, the capital of British Columbia, and the British naval station in the North Pacific, holding a similar position to that of Halifax on the Atlantic. Here the steamships of the Pacific Ocean can be supplied with coal from the Vancouver Island mines, and close by is the strongly fortified town of ESQUIMALT, where are situated the British arsenal and a large dock-yard for repairing warships and other vessels (Fig. 122). NANAIMO is the principal coaling station for the British fleet, and exports large quantities of coal to San Francisco and other places in the United States.

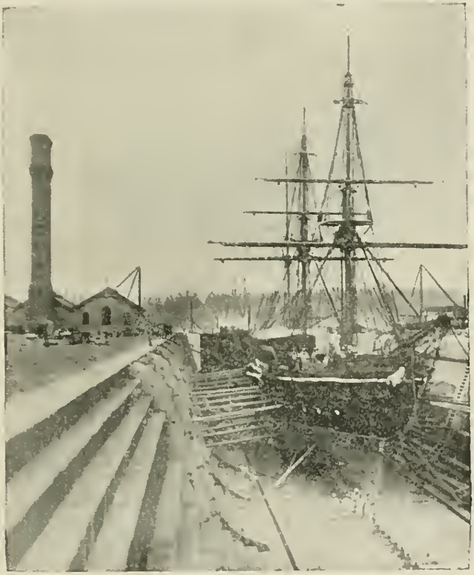


FIG. 122.
View of H.M. Dry dock at Esquimalt.

As nearly all the vessels for ocean navigation and all the great navies of the world consist of steamships, you can see the importance of coal, and how fortunately Canada is situated with unlimited supplies at the two extreme points, British Columbia and Nova Scotia.

Fisheries. — The waters of British Columbia also teem with the wealth of their natural product — fish. The most important of these is the salmon, and the illustration (Fig. 123) will give you some idea of the importance of the salmon fishery and of the canning industry. NEW WESTMINSTER, at the mouth of the Fraser River, is the chief centre of the fishing industry.

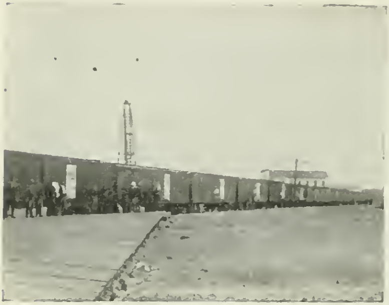


FIG. 123.

A single train on the Canadian Pacific Railway loaded with 374,400 cans of salmon.

Like the salmon of the St. Lawrence, these fish in British Columbia pass from the salt water to spawn in the rivers and ascend the Fraser River as far as 600 miles from its mouth. They also pass up the

FIG. 124.

The "Empress of India."

One of the Canadian Pacific Railway steamships, running to China and Japan

Columbia River through the United States into Canadian territory. Unlike the eastern salmon, however, they come in immense shoals, the run lasting for weeks. The deep-sea fish, halibut and cod, are also very abundant and large, particularly in the vicinity of Queen Charlotte Islands.

Foreign Commerce. — As Montreal and Quebec, Halifax and St. John, are the seaports for commerce by way of the Atlantic Ocean, so VICTORIA and VANCOUVER are the seaports on the Pacific Ocean. Steamers sail from these cities to China and Japan, and to Australia and New Zealand by way of Hawaiian Islands. Trace these routes on the map (Fig. 30). They take away fish, timber, manufactures of wood and iron, and many other things ; and bring back tea, silk, matting, rice, etc., besides carrying many articles for the people in the United States. They also carry much merchandise between Great Britain and other countries of Europe and the countries of the east, by way of the Canadian Pacific Railway and Atlantic steamers.

A telegraph cable is being laid to connect Vancouver Island with Australia, just as Britain is connected with Newfoundland by cable, so that before long a telegraph message can be sent entirely round the world under the ocean or over British territory.

Seal-fishing. — The fine sealskin used for caps and cloaks comes from the *fur seal* of the Pacific Ocean. These animals are taken all along the coast from San Francisco in the United States to Behring Sea in the north, and thousands of them come every spring to the Pribilof Islands (Map, Fig. 31) to rear their young. As the skins are very valuable, a considerable fleet of vessels go out to the sealing-grounds from Victoria every year and bring in usually from 30,000 to 40,000 skins.

Yukon Territory. — This territory has become famous on

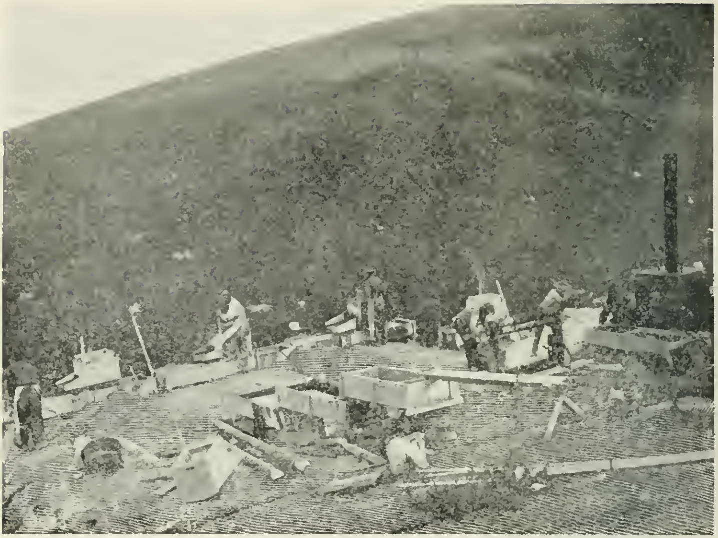


FIG. 125.

Rocking on Gold Hill, Yukon Territory.

This is the simplest and most primitive way of gold seeking. Placing some of the gravel in a trough of water, it is rocked back and forth in such a way as to cause the heavier particles of gold to separate from the gravel, while the lighter materials are thrown away.

account of the valuable *gold mines* discovered in the KLONDIKE region, so called from the Klondike River, a tributary of the Yukon River. Although the weather there, owing to the country being so far north, is intensely cold during the greater part of the year, many people have flocked to the country in search of the precious metal.

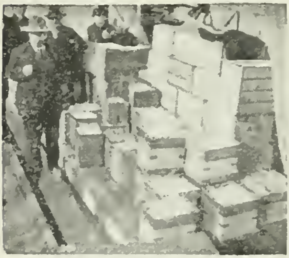


FIG. 126.

Boxes of gold awaiting shipment from Dawson City, Yukon Territory.

In the year 1900 about $25,000,000 worth of gold was taken out of this region.

The rivers are covered with ice, and the land with snow for most of the time. In addition to this, the ground is always frozen hard many feet below the surface. The miners, therefore, have great difficulties to encounter; and until lately all their supplies had to be brought by boat during the short summer, or *packed*, that is, carried by men or horses over the rough mountain passes. To accommodate the great number of people crowding to the gold fields a railway has been built nearly all the way from Skagway on the coast to Dawson.

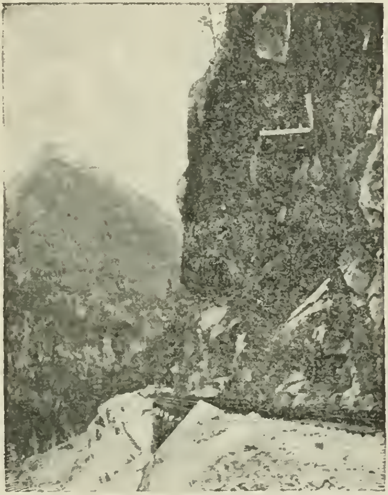


FIG. 127.
View on the railway from Skagway to Dawson City, Yukon Territory.

Dawson is the principal town and the centre of government where the Commissioner representing the Dominion Government and other officials have their residences. From here a large amount of gold is shipped by Skagway to Vancouver and Victoria, where assay offices are located.

The Far North. — In the far north is the District of FRANKLIN, where there live only a few hunters, trappers, and Indians (Fig. 34).

Along the northern coast are found scattered groups of

Eskimos, who get their living almost entirely from the sea. Their food is obtained from the seal, walrus, polar bear, and reindeer; their clothes, summer tents, and boats are made from the skins of these animals; and their oil for light and heat during the long winter night also comes from them. Their winter houses are snow huts, and long journeys over the ice-covered seas are made on sledges drawn by wolf-like dogs.

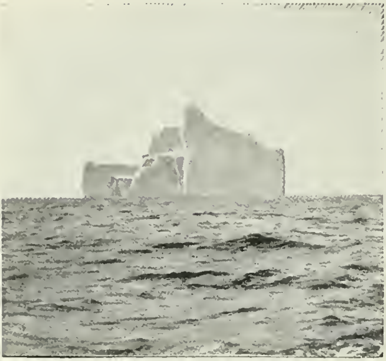


FIG. 128.
Iceberg off the coast of Labrador.

The islands and lands of Franklin District are very desolate. In winter the sea is frozen; and even in summer

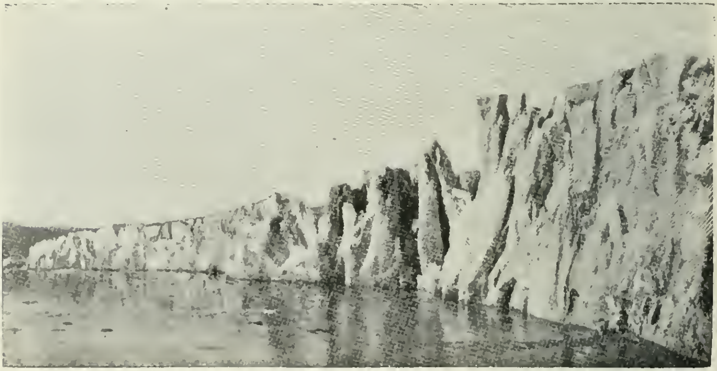


FIG. 129.
A Greenland glacier entering the sea; three miles in width; showing crevasses and small icebergs.

floating ice is usually in sight. Some of the ice is that which has frozen on the surface of the sea during the winter ; but rising above this are many great blocks of ice, or *icebergs* (Fig. 128), sometimes two hundred or three hundred feet in height. They have broken off from the masses of ice, called *glaciers* (Fig. 129), that move down from the land and enter the sea.

The immense island of Greenland is almost altogether covered by such glaciers. No land can be seen excepting near the coast, where live some Eskimos and a few Europeans, called Danes, from Denmark. The island belongs to the Danes, who purchase skins, oil, etc., from the Eskimos.

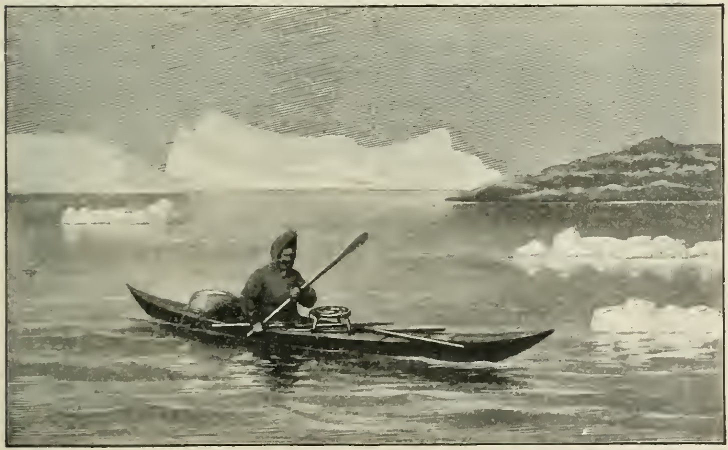


FIG. 130.

A Greenland Eskimo kayak.

XIII. NEWFOUNDLAND

Map Questions (Fig. 31). — (1) How is Newfoundland situated? (2) What strait separates it from Labrador? (3) What is the nearest land on the south-west? (4) What cape is at the south-east point? (5) What islands belonging to France are near the south-east coast? (6) What is the capital and where is it situated? (7) What part of Labrador is under the government of Newfoundland?

Newfoundland is the oldest colony of Great Britain in America. This large island, although standing at the mouth of the Gulf of St. Lawrence, does not belong to the Dominion of Canada, but forms a separate British Province.

Fisheries. — There is a cold current flowing slowly along the Labrador coast from Greenland, which brings down many icebergs from the glaciers in Baffin Bay (Figs. 128 and 129). This current strikes the north-east of Newfoundland. On the south there is a warm current which flows north along the Atlantic coast from the Gulf of Mexico, and is called the Gulf Stream. These two currents meet to the east and south of Newfoundland, and there are formed the Banks of Newfoundland, a wonderful place for cod-fishing, where many vessels for hundreds of years have come from Europe, as well as from Canada and the United States for the summer fisheries. The meeting of the warm and cold currents causes frequent fogs on the Banks.

The Banks of Newfoundland are so called, not because they appear above the surface of the ocean, but because they form a great plateau

600 miles long by 200 miles wide, rising more than two miles from the bottom of the ocean. The water covering them is from 60 to 1000 feet deep.

Seal-fishing. — In the winter and spring vast numbers of seals are found on the ice north of Newfoundland. The seal of the Atlantic is different from the seal of the Pacific Ocean. The fur is of comparatively little value, and the Atlantic seal is hunted chiefly for the layer of fat or blubber, which is just beneath the skin and is useful for the manufacture of seal-oil. The Labrador seals rear their young on the fields of floating ice that drift southward in the cold Labrador current. The hunters generally go out on steamers strongly built to break their way through the ice.

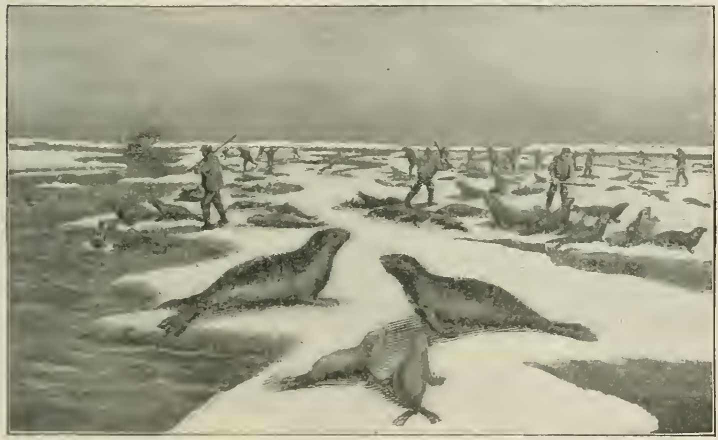


FIG. 131.
Newfoundland sealers killing seals on the floe ice off the coast of Labrador.

ST. JOHN'S, the capital, has a fine harbor (Fig. 132), and is the principal port for the fishing fleet. It is also the nearest port to Europe, being distant from Ireland about 1800 miles. HARBOR GRACE, BRIGUS, and TWILLINGATE are important fishing towns.

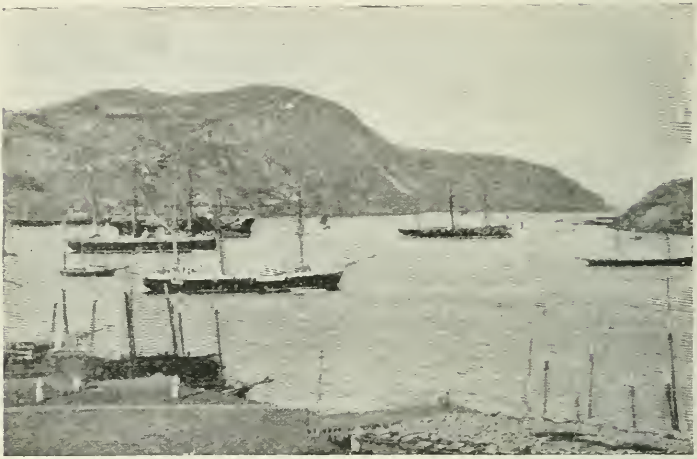


FIG. 132.
View of the harbor of St. John's, Newfoundland.

Interior. — As most of the people are engaged in the fisheries, they have naturally settled along the coast, chiefly on the southern and eastern shores, and the interior has been comparatively little explored. The cold Labrador current makes the north-eastern shore inhospitable. Lately, valuable mines of iron, copper, and other minerals have been found, and enterprising efforts have been made to develop the mineral resources of the country. The main railway line

FIG. 133.
Steamship crossing from Sydney, C.B., to Port aux Basques, Newfoundland

extends from St. John's through the mineral region in the centre of the island, 548 miles, with various branches, and is connected by steamship at Port aux Basques with Cape Breton.

Submarine telegraph cables connect Trinity Bay, north-west of St. John's, in Newfoundland, with Ireland, and a short line connects the island with Cape Breton, so that messages can be sent from Canada through Newfoundland to Europe.

Labrador. — This is a strip of the coast of the mainland, extending from the Strait of Belle Isle to Cape Chidley, and is under the jurisdiction of Newfoundland. It is valuable for its fisheries, and is inhabited chiefly in the fishing season, when the population may amount to 10,000 persons (see p. 72).

St. Pierre and Miquelon. — Near the south-east coast of Newfoundland are two small groups of islands, of which the largest are St. Pierre and Miquelon. These belong to France, and are valuable as a basis for the French cod-fishery on the Banks of Newfoundland.

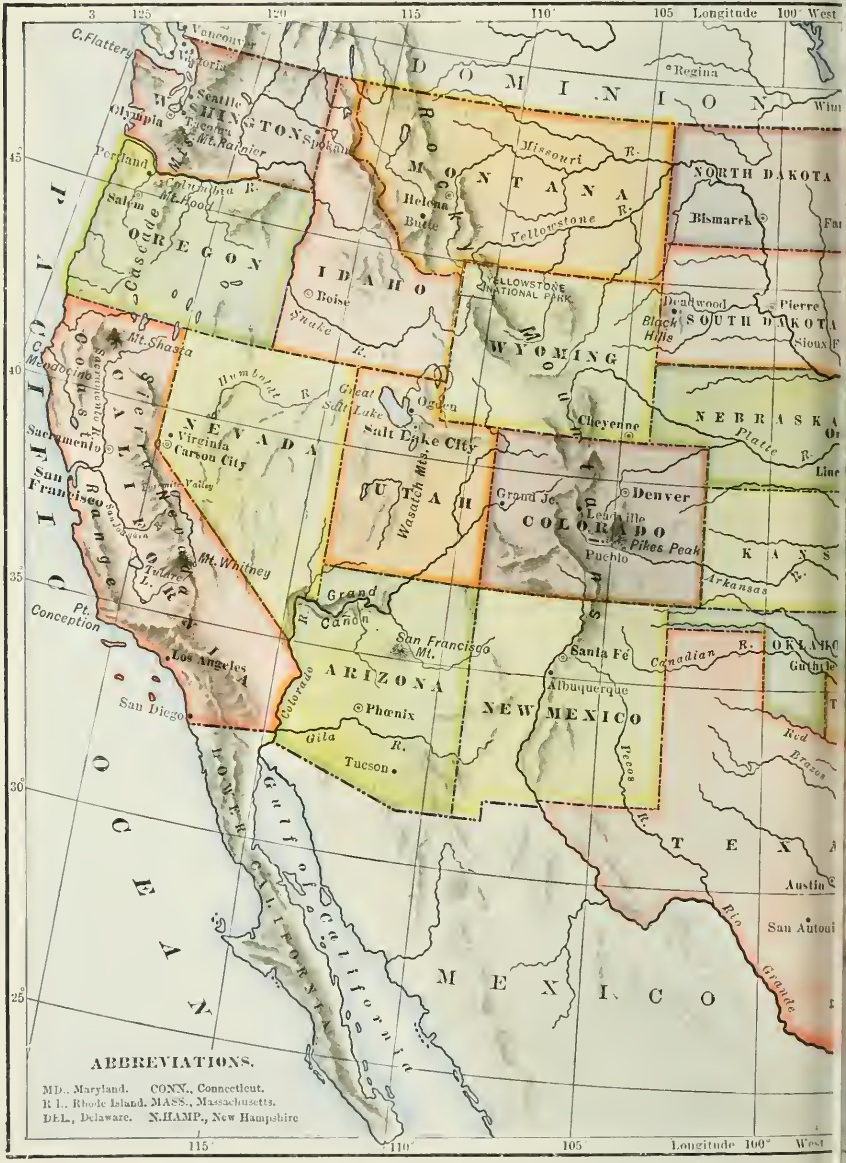
XIV. THE UNITED STATES OF AMERICA

Map Questions. — (1) What waters border the United States? (2) What countries? (3) What is the greatest distance across the United States from east to west? From north to south? (4) Where are the main divides? (5) Do you see any part that has very few streams? What does that suggest to you? (6) Find New York, Philadelphia, Boston, Portland, Baltimore, Washington, Chicago, New Orleans, St. Louis, Denver, San Francisco, and tell where each is. (7) What states border Canada?

Previous to the war for independence (p. 30) the United States of America were colonies of Great Britain. They then numbered thirteen colonies, each with its own separate government. Having gained their independence, these colonies were named States and their Union — the United States of America.

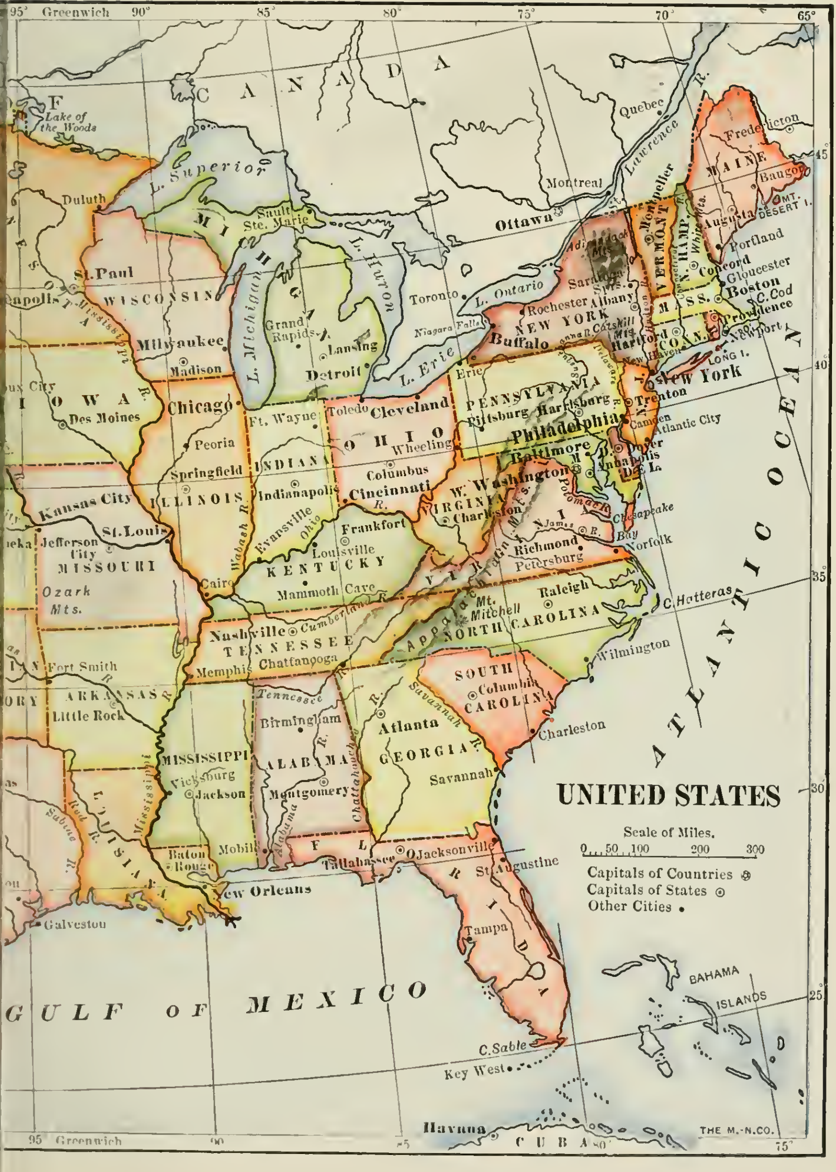
The form of government in the United States is different from that of Canada. Each State has its own government, like each province of Canada, and each State also elects representatives to Congress, which meets at Washington and legislates for the whole country, like the members of the Dominion Parliament do at Ottawa. But the heads of the government — the Governor of a State, and the President and Vice-President of the United States — are also elected by the votes of the people. How does this differ from the form in Canada?

For a long time after the war for independence, the interior of the country was, like that of Canada, an unknown wilderness, inhabited chiefly by Indians. In the south and south-west, the French and Spaniards occupied



ABBREVIATIONS.

MD., Maryland.
CONN., Connecticut.
R. I., Rhode Island.
MASS., Massachusetts.
DEL., Delaware.
N. HAMP., New Hampshire


UNITED STATES

Scale of Miles.

Capitals of Countries ⊛
Capitals of States ⊙
Other Cities •

Fig. 134

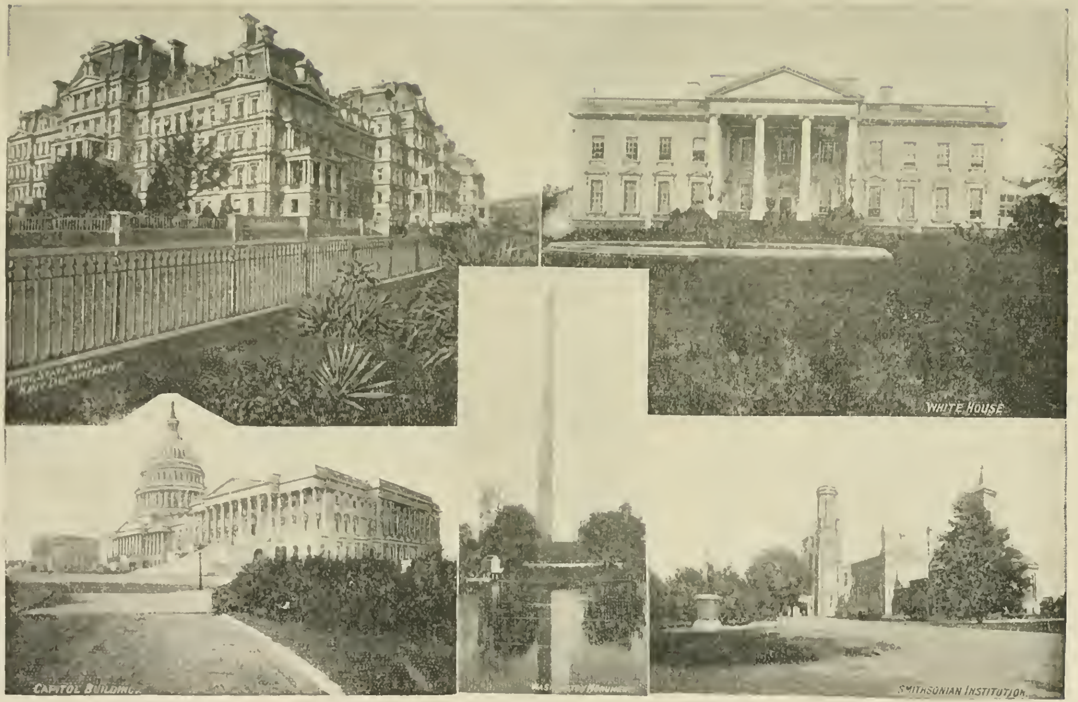


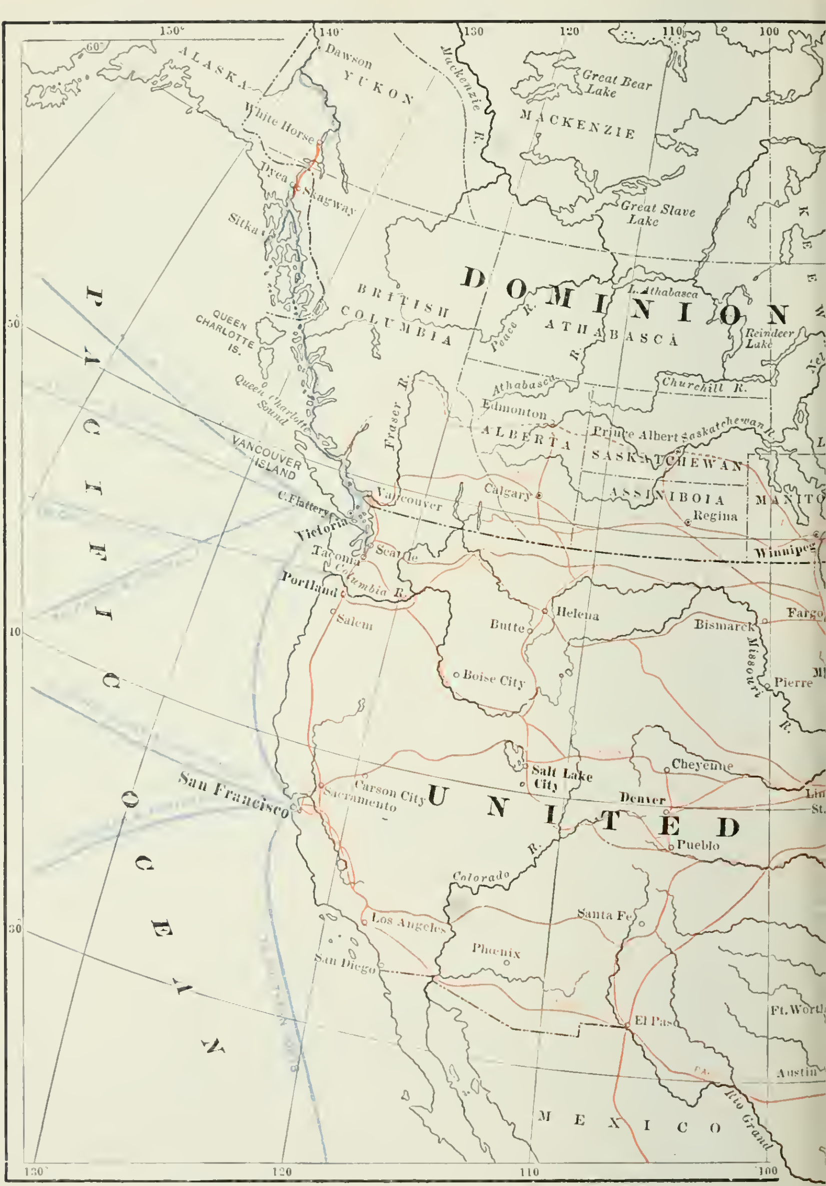
Fig. 135.

A group of government buildings at Washington. Notice how very large the Capitol is by comparing the great columns in front with those in the White House, the residence of the President.

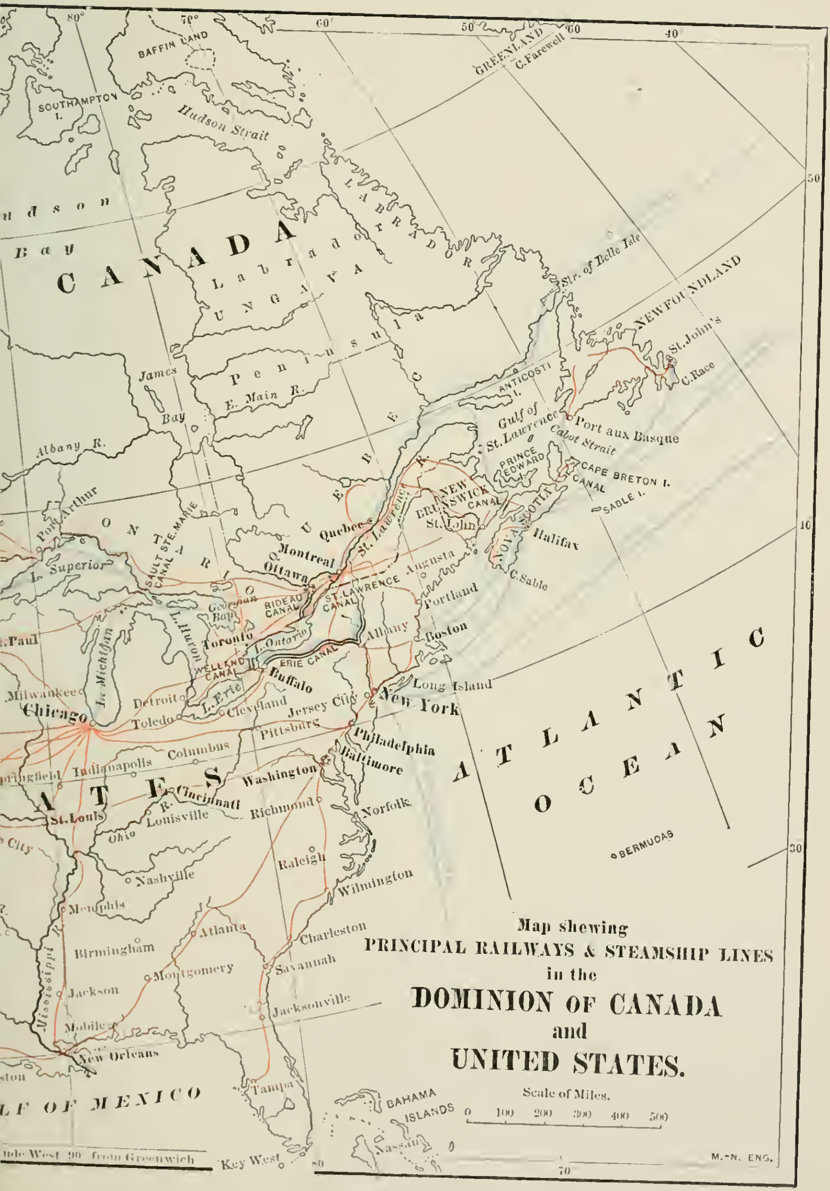
a large territory. Part of this the United States has since obtained by war and part of it by purchase, so that the country is now several times as large as it was at first. Many large states have been added to the original thirteen, until there are now forty-five States. There are still some parts called *Territories*, which, like the Territories of Canada, have not entire self-government, and have not yet been made into States.

A hundred years ago the whole population of the United States was not more than that of the city of Greater New York (p. 112) at the present day.

As the whole northern part of the United States borders upon Canada, there is naturally much intercourse between the two countries, and we should therefore become familiar with the country, its products and its people. This we can do most readily by taking the States in groups.



150°
140°
130
120
110
100
60°
50
40
30
ALASKA
Dawson
YUKON
White Horse
Dyea
Skagway
Sitka
Mackenzie R.
Great Bear Lake
MACKENZIE
Great Slave Lake
DOMINION
BRITISH COLUMBIA
QUEEN CHARLOTTE IS.
Queen Charlotte Sound
L. Athabasca
Peace R.
ATHABASCA
Reindeer Lake
Churchill R.
Athabasca
Edmonton
ALBERTA
Prince Albert
Saskatchewan R.
SASKATCHEWAN
Fraser R.
VANCOUVER ISLAND
C. Flattery
Vancouver
Calgary
ASSINIBOIA
Regina
MANITO
Winnipeg
Victoria
Tacoma
Seattle
Columbia R.
Portland
Salem
Helena
Butte
Bismarck
Fargo
Missouri R.
Pierre
Boise City
PACIFIC OCEAN
Salt Lake City
Cheyenne
Carson City
Sacramento
San Francisco
UNITED
Denver
Pueblo
Colorado R.
Santa Fe
Los Angeles
Phœnix
San Diego
El Paso
Ft. Worth
Austin
MEXICO
Rio Grande



Map shewing

PRINCIPAL RAILWAYS & STEAMSHIP LINES

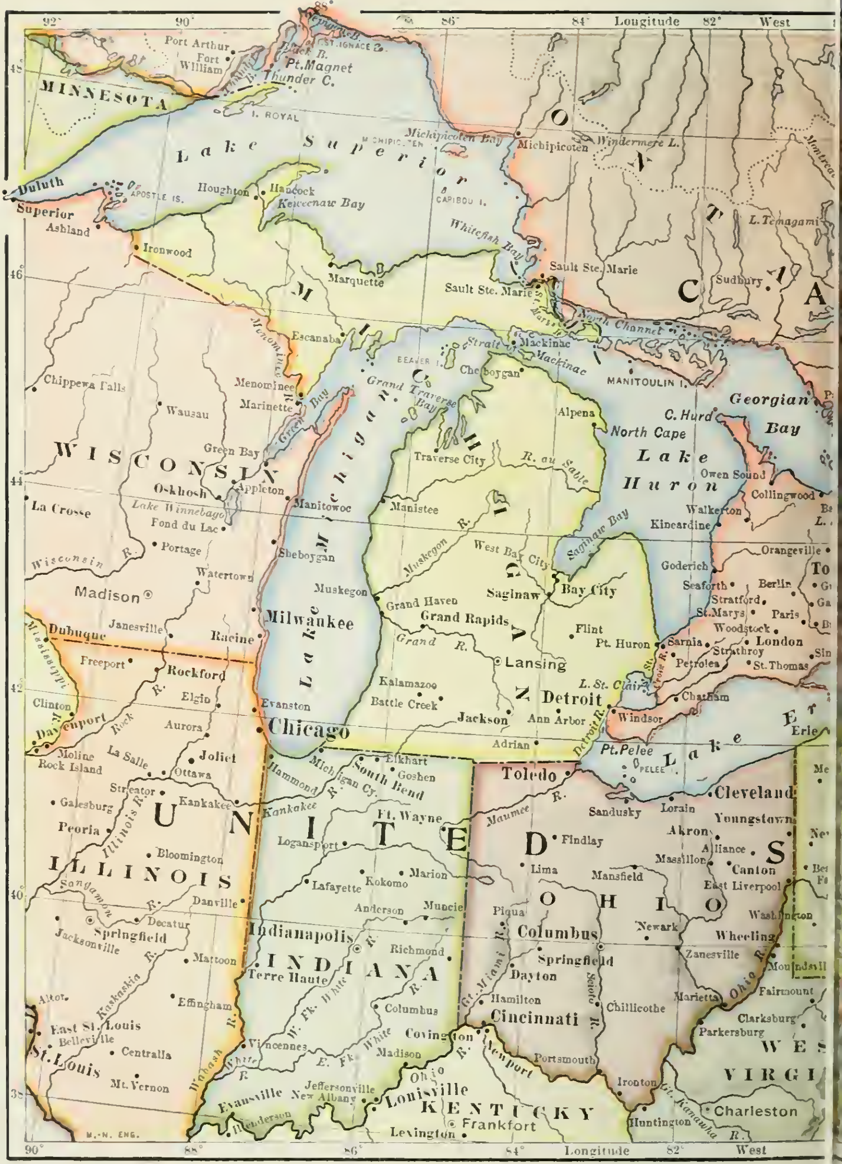
in the

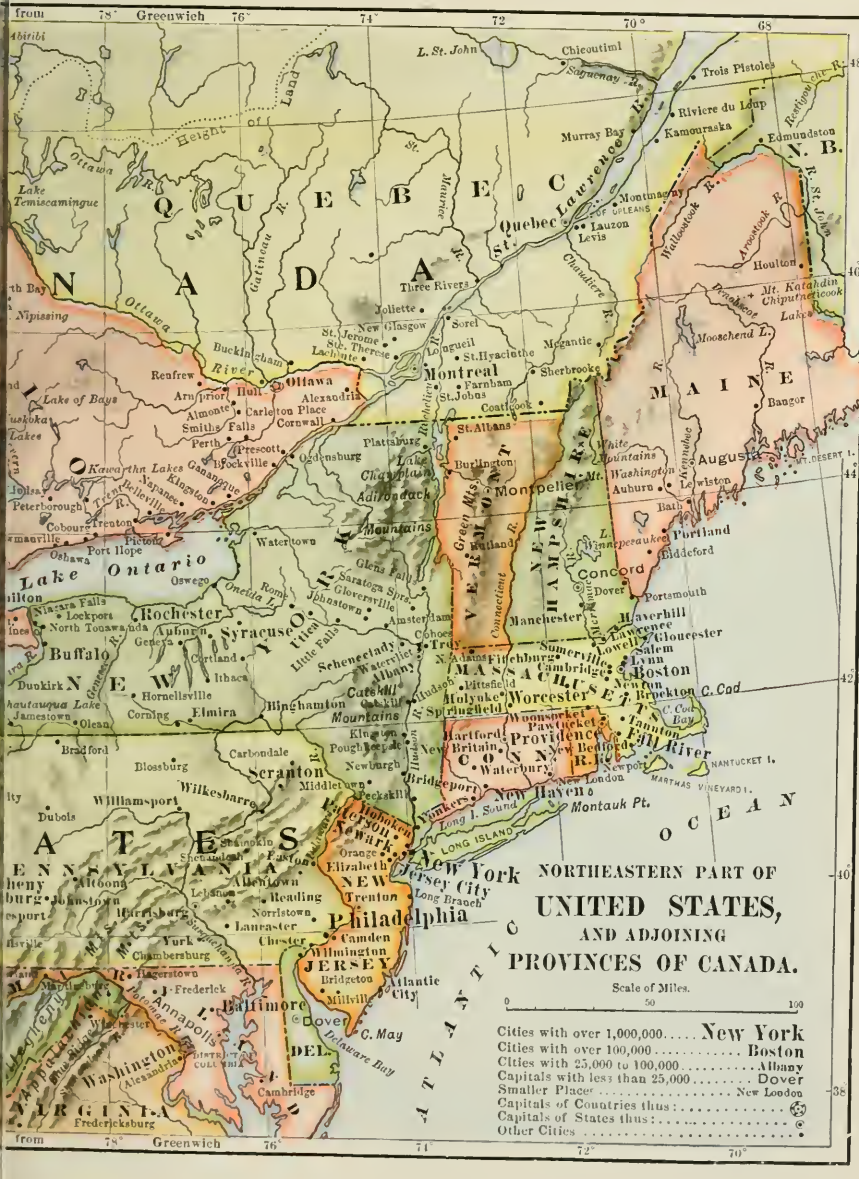
DOMINION OF CANADA

and

UNITED STATES.

Scale of Miles.


92°
90°
88°
86°
84°
Longitude
82°
West
48
46
44
42
40
38
Nepigon B.
ST. IGNACE
Black B.
Pt. Magnet
Thunder C.
Port Arthur
Fort William
MINNESOTA
I. ROYAL
Lake Superior
MICHIPICOTEN
Michipicoten Bay
Michipicoten
Windermere L.
Duluth
Superior
Ashland
APOSTLE IS.
Houghton
Hancock
Keweenaw Bay
CARIBOU I.
Whitefish Bay
Ironwood
Marquette
Sault Ste. Marie
Sault Ste. Marie
St. Marys
North Channel
Sudbury
L. Temagami
Montreal
ONTARIO
CANADA
Menominee
Escanaba
Strait of Mackinac
Mackinac
BEAVER I.
Cheboygan
MANITOULIN I.
Grand Traverse Bay
Chippewa Falls
Wausau
Menominee
Marinette
Green Bay
Georgian Bay
C. Hurd
North Cape
Alpena
Lake Huron
Traverse City
R. au Sable
Owen Sound
Collingwood
WISCONSIN
Green Bay
Oshkosh
Appleton
Lake Winnebago
Manitowoc
Manistee
Walkerton
Kincardine
La Crosse
Fond du Lac
Portage
Saginaw Bay
Muskegon R.
West Bay City
Orangeville
Wisconsin R.
Sheboygan
Goderich
Watertown
Muskegon
Bay City
Saginaw
Seaforth
Berlin
Madison
Grand Haven
Grand Rapids
Stratford
Paris
Milwaukee
St. Marys
Woodstock
Janesville
Racine
Grand R.
Flint
Pt. Huron
Sarnia
London
Dubuque
Lansing
Petrolea
Strathroy
St. Thomas
Mississippi R.
Freeport
Rockford
Lake Michigan
MICHIGAN
L. St. Clair
St. Clair R.
Kalamazoo
Chatham
Clinton
Elgin
Evanston
Battle Creek
Detroit
Windsor
Rock R.
Davenport
Aurora
Chicago
Jackson
Ann Arbor
Lake Erie
Erie
Moline
Rock Island
La Salle
Joliet
Detroit R.
Adrian
Pt. Pelee
PELEE
Hammond
Michigan Cy.
Elkhart
South Bend
Goshen
Toledo
Ottawa
Streator
Galesburg
Kankakee
Kankakee
Maumee R.
Sandusky
Lorain
Cleveland
Illinois R.
Ft. Wayne
Youngstown
Peoria
UNITED STATES
Logansport
Findlay
Akron
Alliance
Bloomington
Massillon
Canton
ILLINOIS
Lafayette
Kokomo
Marion
Lima
Mansfield
East Liverpool
Sangamon R.
Danville
Anderson
Muncie
Piqua
OHIO
Decatur
Springfield
Columbus
Newark
Washington
Jacksonville
Indianapolis
Wheeling
Richmond
Springfield
Zanesville
Mattoon
INDIANA
Miami R.
Dayton
Scioto R.
Moundsvill
Terre Haute
White R.
Kaskaskia R.
Columbus
Marietta
Ohio R.
Fairmount
Alton
Effingham
Hamilton
Chillicothe
Cincinnati
Clarksburg
Parkersburg
East St. Louis
Belleville
W. Fk. White R.
Wabash R.
Covington
Newport
St. Louis
Centralia
Vincennes
White R.
E. Fk. White R.
Madison
Portsmouth
WEST VIRGINIA
Mt. Vernon
Jeffersonville
New Albany
Ohio R.
Ironton
Gt. Kanawha R.
Evansville
Louisville
KENTUCKY
Charleston
Henderson
Frankfort
Huntington
Lexington
M.-N. ENG.
90°
88°
86°
84°
Longitude
82°
West



NORTHEASTERN PART OF

UNITED STATES,

AND ADJOINING

PROVINCES OF CANADA.

Scale of Miles.

0 50 100

Cities with over 1,000,000..... **New York**
Cities with over 100,000............ **Boston**
Cities with 25,000 to 100,000.......... **Albany**
Capitals with less than 25,000........ Dover
Smaller Places.................. New London
Capitals of Countries thus:........... ⊛
Capitals of States thus:.......... ⊙
Other Cities........................ •

Fig. 130

XV. NEW YORK AND THE NEW ENGLAND STATES

Map Questions. — (1) What State borders on New Brunswick? (2) What States on Quebec? (3) On Ontario, south and east? (4) What States are east of New York? (5) Which State is the smallest? (6) Which does not border on the ocean? (7) What is the capital of each State? (8) In what direction is New York from Montreal? (9) Buffalo from Toronto? (10) Portland from Fredericton?

Names. — The first settlers who came to the eastern part of the United States were English, and so the country east of New York State received the name of New England. New York State was first settled by the Dutch, and the city of New York was then called New Amsterdam, but this name was changed when the city was taken by the British. You will find several other names beginning with *New*, as New Hampshire and New Haven. What reason can you give for the word *New* being used so often?

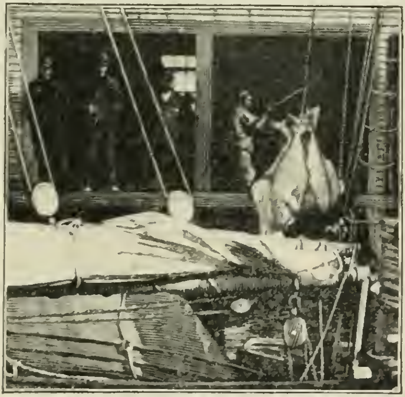


Fig. 137.

Fishermen hoisting halibut from a fishing vessel at Gloucester. Notice that these fish are as large as a man.

Seaports. — You will see by the map that the coastline resembles that of Nova Scotia, with numerous bays, promontories, and harbors. Here, too, excellent harbors have determined the places where some of the greatest cities shall grow up. Thus, on the New England coast, PORTLAND is the terminus of the Grand Trunk Railway of Canada, and the winter port for many Canadian steamships sailing to Europe. BOSTON is the largest city, and GLOUCESTER the principal port for fishermen (Fig. 137).

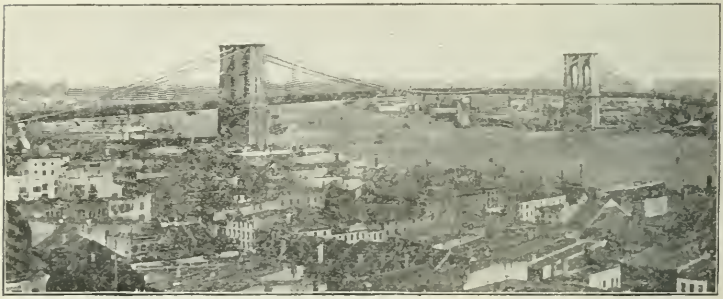


FIG. 138.
Bridge between New York City and Brooklyn.

NEW YORK, owing to its splendid harbor, has become the largest city on the continent and is situated on Manhattan Island, at the mouth of the Hudson River. In GREATER NEW YORK is included the large city of BROOKLYN, on the opposite shore of the harbor. What is the cause of so many people crowding together at this point? Besides the extent and convenience of its harbor for the accommodation of shipping to and from other countries, New York possesses the best water communications with the north and west by way of the Hudson River. The Hudson River and the Erie canal from Albany to Buffalo and the Great Lakes afford cheap transportation for the products of the West; and Lakes George and Champlain with the Richelieu River form a cheap water way for great quantities of Canadian lumber. New York has also become the terminus of many great railway systems and is thus the receiving and distributing point for the greater part of the northern and central United States.

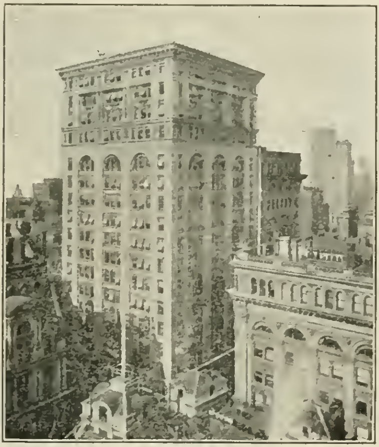


FIG. 139.

One of the high buildings in lower New York. How many stories has it?

Lumbering. — The Notre Dame Mountains between Quebec and New Brunswick are continued into New England and New York, under the names of the White Mountains, Green Mountains, and Adirondack Mountains. As in Canada, so here, this mountainous region is valuable for lumbering. This is carried on most extensively in Maine, where BANGOR is the chief shipping port.

Farming. — In the New England States there are so many hills and mountains that the soil is generally poor and the surface rocky. Farming, therefore, is not very productive, although nearness to large markets makes it still profitable. In New York State farming is of greater importance, as most of the state is more level and has a rich soil, producing abundant crops similar to those of western Ontario.

Manufacturing. — There is one advantage possessed by the New England people. The rivers, being short and having their sources in the highlands, as in Canada, are swift in their currents with many rapids and falls. In what way is this an advantage? You will find, for this reason, that the chief industry of the New England States is manufacturing. The Connecticut and Merrimac rivers

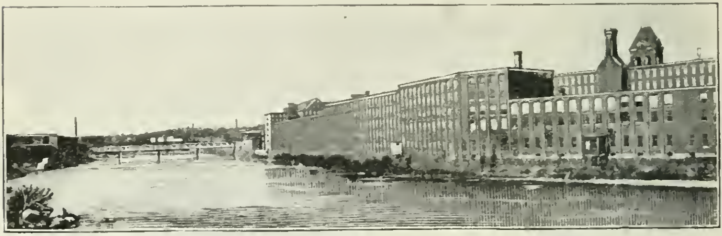


FIG. 140.

Great cotton-mills on the Merrimac River at Manchester, New Hampshire.

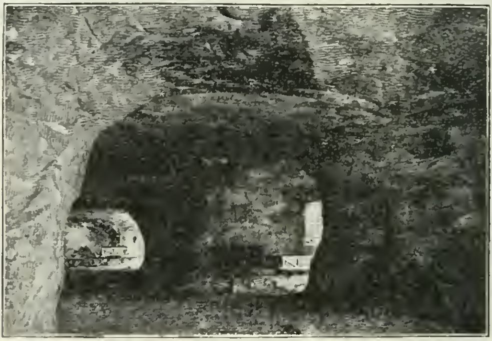


FIG. 141.

In a salt mine, a thousand feet beneath the surface, in central New York. The walls and sides of these tunnels are glistening white salt.

are the most important. At MANCHESTER (Fig. 140), in New Hampshire, LOWELL and FALL RIVER, in Massachusetts, and PROVIDENCE, in Rhode Island, cotton goods are manufactured in immense quantities; at LYNN, boots and shoes; at SPRINGFIELD, HARTFORD, and other cities, metal goods of all kinds are made. In New York State there is also much manufacturing, at BUFFALO, ROCHESTER, TROY, and other places.

Salt. — An extensive bed of salt is found deep down in the earth, in the central part of New York State, south of SYRACUSE (Fig. 141).

XVI. ATLANTIC STATES SOUTH OF NEW YORK

Map Questions. — (1) Which of these Atlantic States does not border on the Atlantic Ocean? (2) Which is the smallest? (3) Name the chief rivers and tell where they are. (4) Which is the most southern Atlantic State? (5) What large island is south of it? (6) What mountain range do you find extending through some of these States? (7) Which States have no mountains?

The Coastline. — In the northern part of these States you will observe that the coastline, as in New England, is very irregular. At three places the sinking of the land has caused the ocean to reach far into the land, forming Chesapeake, Delaware, and New York bays. Farther south, there is a strip of low, level, swampy land, known as the *coastal plains*, extending to the Peninsula of Florida. From the coast the plains gradually rise towards the mountains.

Coal, Oil, and Iron. — The Appalachian Mountains, which extend from Pennsylvania to Alabama, abound in coal, oil, and iron. These being found near together have led to extensive manufacturing. PITTSBURG is the centre of the coal and iron trade in Pennsylvania: BIRMINGHAM in Alabama: and WHEELING in West Virginia. Hard or *anthracite* coal comes chiefly from the neighborhood of SCRANTON and WILKES-BARRE in Pennsylvania. Petroleum is largely found in the western part of Pennsylvania and in West Virginia.

Cotton and Tobacco. — The climate of Virginia is so mild that tobacco of the best quality can be raised there most profitably. RICHMOND is the great tobacco market.

The tobacco plant, which white men found the Indians smoking, has a large leaf that is picked and dried, and then made into cigars and other forms in which tobacco is used.

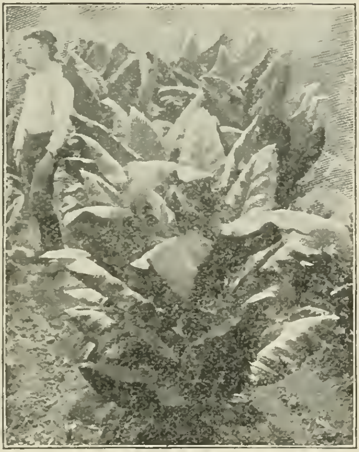


FIG. 142.
The tobacco plant.

On the coastal plains the soil is usually fertile, the climate is warm, and there is plenty of rain everywhere. The southern farms are commonly called *plantations;* and the principal crops, besides tobacco, are rice in the low-lying, swampy lands, and wheat, corn, and cotton away from the coast. CHARLESTON and SAVANNAH are the principal cotton shipping ports on the Atlantic coast, and MOBILE and NEW ORLEANS on the Gulf of Mexico.

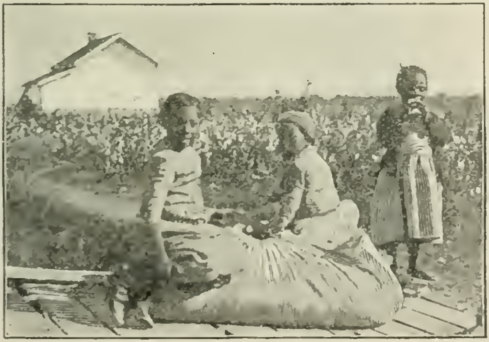


FIG. 143.
Negro children on a cotton plantation. The white spots are cotton bolls.

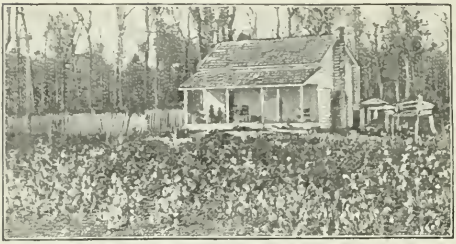


FIG. 144.
A small cotton field and a negro home. The cotton bolls look like white flowers.

The cotton plant grows to a height of two to four feet. It has a white blossom, and, after the flower is gone, a small pod grows. This pod enlarges until it ripens and bursts into a white ball, called the *cotton boll*, which looks somewhat like a milk-weed pod after it has burst open.

The cotton bolls are picked in the autumn, usually by colored people, men, women, and children, and placed in a machine called the *cotton gin;* this removes the cotton-seed, and also separates or combs out the fibres of the cotton. The cotton is then packed in bales, like hay, and shipped away to be made into thread, cotton cloth, and other goods. Can you name any place in Canada where there is a cotton factory?

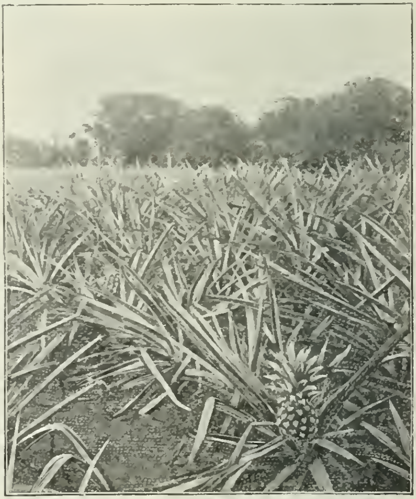


FIG. 145.
A pine-apple field in Florida.

Commerce.—A great quantity of the natural products of the Southern Atlantic States, such as cotton, tobacco, and coal, are sent to New England, New York, and elsewhere for manufacturing purposes, and an enormous amount is sent abroad, chiefly to Great Britain.

You will therefore understand how other large seaports, besides New York, have grown up. The largest of these are PHILADELPHIA and BALTIMORE. Another large city in this section is WASHINGTON in the District of Columbia, on the Potomac River. This is the national capital and here are the many great government buildings (Fig. 135).

Fruits. — The low plain of Florida is noted for its fruits. It is so far south that it is warm enough for oranges, lemons, and pine-apples (Fig. 145).

Climate. — The climate of the Southern States is so mild that many people go there in the winter to escape the cold. In the southern part it rarely snows, and flowers are in blossom in midwinter. Do you know why song birds of the north go there in winter?

XVII. THE MISSISSIPPI VALLEY AND GULF STATES

MAP QUESTIONS. — (1) In what State does the Mississippi River rise? (2) In what State is its mouth? (3) What States border it on the east? — On the west? (4) Name the chief tributaries on the east. — On the west. (5) Name the principal cities situated on it. (6) What city on Lake Michigan is nearly connected with it by one of its tributaries?

Surface. — You have learnt (Our Home, p. 29) how difficult it is to realize that one is living in a valley, where the slopes are so gentle and the extent so vast as in the Mississippi Valley. This is over three thousand miles long, and many hundred miles wide, extending from the Great Lakes, Manitoba, and the North-West Territories to the Gulf of Mexico.

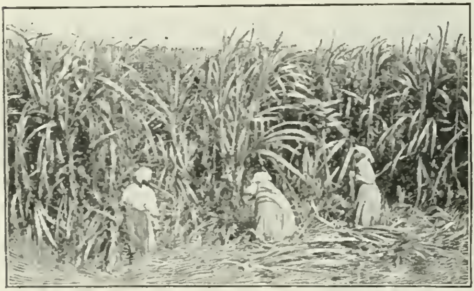


FIG. 146.

Negro women cutting sugar-cane in Louisiana.

Products. — In the north and west the country is a vast prairie similar to Manitoba and the North-West Territories of Canada. For the same reasons the climate there is similar; in the West and in Texas, where the

Rocky Mountains intercept the moisture from the Pacific Ocean, the people are chiefly engaged in raising cattle, sheep, and horses; farther to the east, enormous quantities of wheat are raised in Dakota and Minnesota. Going towards the south we find corn the most valuable crop, then tobacco in Kentucky, cotton in Mississippi, and sugar-cane and rice in Louisiana.

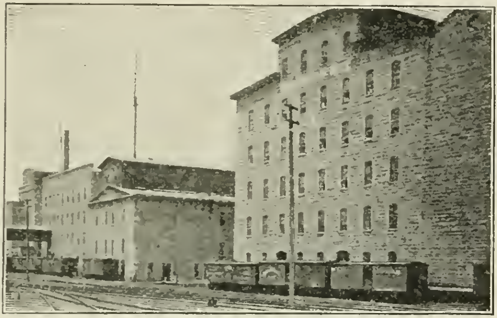


FIG. 147.
The Pillsbury-Washburn flour-mills at Minneapolis, Minnesota. The five mills of this Company can turn out 25,000 barrels of flour each day.

The great abundance of the natural products of this region has naturally created special industries at different

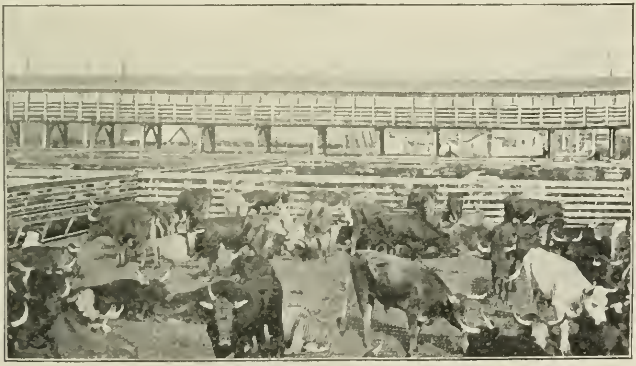


FIG. 148.
Cattle in the Chicago stock-yards.

points. At MINNEAPOLIS, the abundant water-power from the Mississippi supplies power for the greatest flour mills in the world. DULUTH, at the head of navigation on the Great Lakes, is another milling centre. CHICAGO, the largest city in the West, at the head of Lake Michigan, is the principal centre of the cattle and grain trade. From its position at the head of lake-navigation, it is the receiving and distributing point for a large part of the trade west of the Great Lakes. As Lake Michigan extends so far south, all the railways from the North-western States must pass to the south of it through Chicago in going east and south-east. Other important cities on the Great Lakes are CLEVELAND, DETROIT, MILWAUKEE, and TOLEDO. State where these are situated.

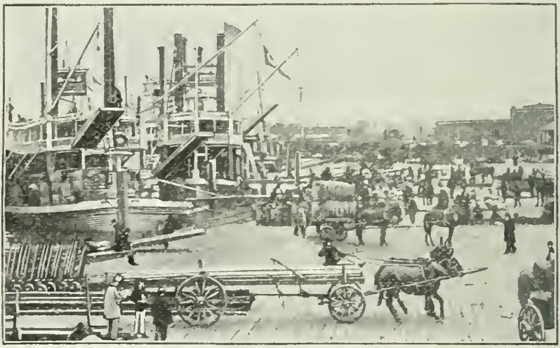


FIG. 149.

Loading and unloading goods on the levee at New Orleans. Notice the mules, one of the most common draft animals of the South.

Passing on to the south we find CINCINNATI and LOUISVILLE on the Ohio, OMAHA and KANSAS CITY on the Missouri, ST. LOUIS on the Mississippi near the mouth of the Missouri, and farther south, MEMPHIS and NEW ORLEANS, all important cities, the latter being the shipping port for cotton and other Mississippi Valley products to Europe.

Mining. — The principal mining section of this part of the country is in the neighborhood of Lake Superior in the States of Michigan, Wisconsin, and Minnesota, where the richest iron and copper mines in the world are found. In Illinois, Ohio, and Indiana, coal also is found, an invaluable help to the manufacturing industries in these States.

Oklahoma and Indian Territory. — A few years ago the section north of Texas, now called Indian Territory and Oklahoma, was known under the name of Indian Territory, a place set aside by the government as a home for some of the tribes of Indians. But later, these Indians were collected in the part now called Indian Territory; then Oklahoma was opened up to white people for settlement. Now many thousands of white men are living in the *Territory* of Oklahoma.

XVIII. WESTERN STATES

Map Questions. — (1) In what direction do the mountains extend? (2) Name the principal ranges. (3) Which are the chief rivers? (4) Which has its source in Canada? (5) In which section are there few rivers? (6) What does that suggest about rainfall? (7) Some rivers empty into lakes that have no outlet. What does that suggest (see Our Home, p. 53)? (8) Compare the coastline of the Pacific with that of the Atlantic. (9) What does the coast suggest about harbors? (10) What States border on the Pacific coast? (11) Where are Denver, Salt Lake City, Portland, Seattle, Los Angeles, and San Francisco?

Surface. — Similar to the mountains of British Columbia you will find here several ranges, the most easterly being the Rocky Mountains. Here, however, they spread wider apart and rise from a vast dry plateau more than a mile above the level of the sea. All these mountains together are known as the Western Cordilleras (p. 89).

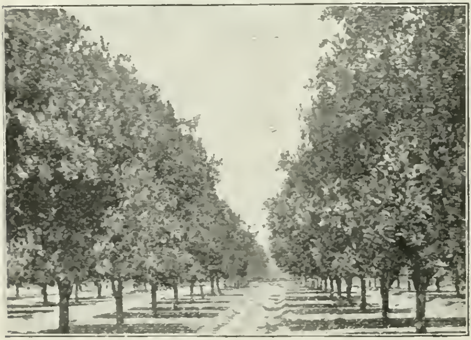


Fig. 150.

An orange grove near Los Angeles in Southern California, the irrigation ditch being seen between the two rows of orange trees.

Farming.—Owing to the mountainous nature of much of the country in the south and east, there is comparatively little farming; and, even where the soil is fertile, the climate is usually too dry for cultivation, because the winds that reach it do not carry much vapor. The land, in places, is truly a desert, and one may travel for scores of miles without seeing any vegetation excepting cactus or sagebrush. In some parts, however, where irrigation has been introduced, the dry, sandy desert has been transformed into the most fertile land. You can judge of the dryness of the atmosphere from the Great Salt Lake being without an outlet (Our Home, p. 53), and you will notice on the map how the Humboldt River in Nevada gradually disappears in the sand. In California, on the contrary, the valley between the Coast Range and the Sierra Nevada Mountains is one of the most fertile parts of the continent, producing great quantities of wheat, and is celebrated for its fruits. LOS ANGELES, a large city, is the centre of one of the garden spots of the world (Fig. 150), where oranges,

FIG. 151.
A western cowboy.

lemons, peaches, figs, olives, almonds, and many other fruits and nuts are produced in great profusion. It is also a famous health resort. Everywhere in that vicinity, irrigation is necessary. Without that a piece of land produces no crops. Farther north, in northern California, Oregon, and Washington, the moist winds from the ocean render irrigation unnecessary. On the mountain slopes are extensive forests, and in the valleys wheat is largely cultivated.

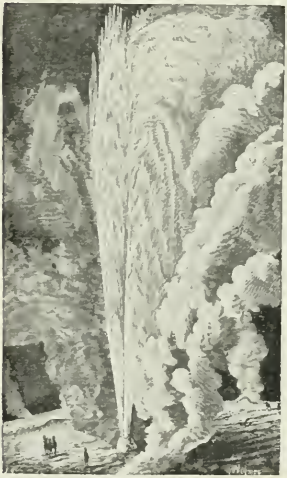


FIG. 152.

The Beehive Geyser, in the Yellowstone National Park, in eruption.

Mining. — But if much of this country is rocky and arid, there are, as in British Columbia, valuable minerals under the surface.

In 1848 *gold* was discovered in California, and men hastened there in thousands from all over the world, by sea and by land, in spite of great hardships. Ever since then California has been one of the leading states in the production of gold. Now Colorado has taken the lead both in the production of gold and silver. DENVER is the principal centre of the mining region in Colorado, and some of the greatest copper mines in the world are at BUTTE in Montana.

Ranching. — Here, too, the climate and products of the States at the base of the Rocky Mountains resemble those of the North-West Territories, and ranching is the chief occupation from Montana to Texas. The animals raised, cattle, sheep, and horses, are finally shipped eastward to furnish meat, leather, and wool. It is in these States that the cowboys live, spending most of their days on their horses (Fig. 151).

Wonderful Scenery. — Some of the places in this western country are among the most interesting in the world. In north-western Wyoming, in the Yellowstone National Park, are hundreds of springs where the water is so hot that it boils. At some points boiling water and steam shoot upwards with a roar, from holes in the ground, and rise frequently to the height of one or two hundred

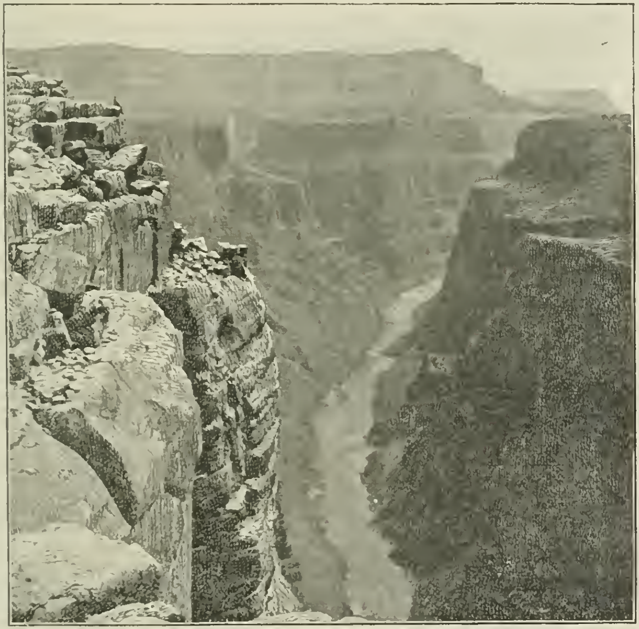


Fig. 153.
A view in the Colorado Canyon.

feet. These are called *geysers* (Fig. 152). Through this park the Yellowstone River flows, falling 308 feet at one leap into a deep gorge.

No place, however, is more interesting to view than the wonderful Colorado Canyon in Arizona and Utah (Fig. 153), an immense river valley cut in the rocks of the plateau to the depth of over a mile in some places. Trace its course on the map.

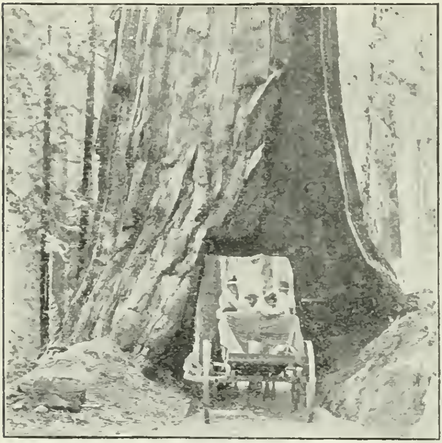


FIG. 154.

One of the "big trees." Notice that through a hole in the trunk a large waggon can be driven.

In California there are some groves of extraordinary gigantic trees, their straight trunks rising to a height of 300 feet. A summer house, built on the stump of one which was cut down, was over 30 feet in diameter. As all the trees near the "big trees" grow to an immense size, from the same cause as in British Columbia (p. 96), it is difficult to realize the wonderful size of these giants.

Seaports. — Comparing the Pacific with the Atlantic coast of the United States, one sees some striking differences. The Atlantic coast is low and very irregular, having many fine bays and harbors, with numerous great cities about them. But the Pacific coast is regular, has

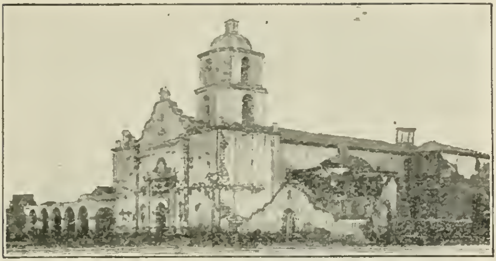


FIG. 155.
A Spanish mission in Southern California — a relic of the days when that section belonged to Spain.

steep mountains rising in many places directly from the sea, and has few fine harbors. SAN FRANCISCO is the most important. From there steamship lines cross the Pacific to China and Japan, Australia, and South America. PORTLAND, near the mouth of a small branch of the Columbia River, TACOMA, and SEATTLE are also important shipping towns.

The Mormons of Utah, a people holding peculiar religious views, who were driven out of the Eastern States many years ago, and who settled in that barren region, have changed the desert to a garden by irrigation. They have built the beautiful SALT LAKE CITY near Salt Lake.

FIG. 156.
The desert of Utah, near Great Salt Lake, where there is no fresh water, where it rarely rains, and where there is very little vegetation.

XIX. ALASKA

ALASKA, which you see on the map (Fig. 31), although belonging to the United States, is separated from them by the intervening province of British Columbia. This cold barren land was purchased from Russia. It is so far north that it is partly in the Arctic zone, and many people thought that the money paid for it ($7,200,000) was wasted.

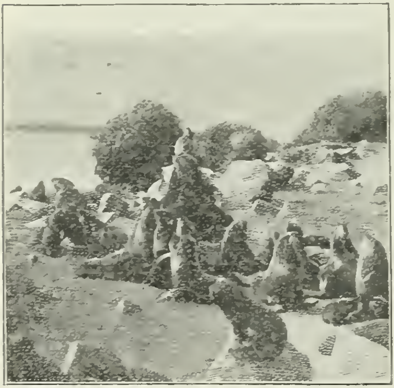


FIG. 157.

Some of the fur-seal on the Pribilof Islands.

In spite of its inhospitable climate, on account of which few food products can be raised there, it has proved valuable in several ways. Much gold is mined on the coast just north of Sitka, and during the last four years, thousands of men have gone there in search of gold, just as years ago thousands rushed to California.

It has also gained some prominence from possessing the most convenient routes to the Klondike gold region of Canada, either by way of the Yukon River, or by the railway lately constructed from Skagway (Fig. 127).

A few hundred miles south-west of the mouth of the Yukon are the small Pribilof Islands, to which thousands of seals come every year to rear their young. These supply the beautiful fur-sealskin for cloaks and caps, and are a different species from the seal of Newfoundland.

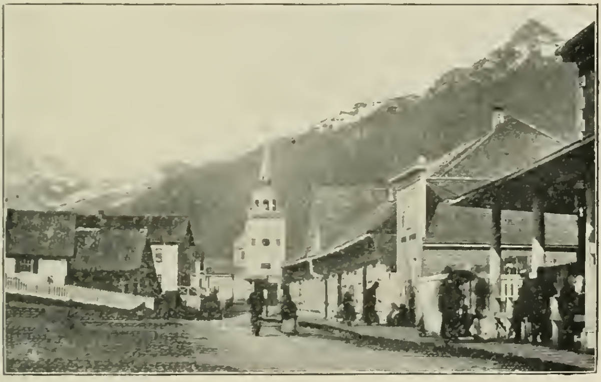


Fig. 158.

A street in Sitka, Alaska. Although it is summer, notice the snow on the mountains.

Seal hunters are only allowed by the Government to capture some of these each year, so that they may not be totally destroyed. Their fur is very expensive, because the animals are not abundant.

In some parts of Alaska there are great forests, and, on the coast, the fisheries, especially of salmon, are important.

A small strip of the coast with the adjoining islands for some distance south of the main boundary line belongs to Alaska (see Fig. 31), and on one of these islands is the capital, SITKA (Fig. 158).

XX. MEXICO AND CENTRAL AMERICA

MAP QUESTIONS. — (1) What does the map tell you about the highlands and lowlands in Mexico? (Notice the rivers.) (2) Find the capital of Mexico. (3) Why is Central America a fitting name for the region south-east of Mexico? (4) Point toward Mexico. (5) How is Central America joined to South America? (6) What sea is between Central America and the West Indies? (7) What gulf between Mexico and the United States? (8) In what zone is Central America? (9) What large peninsulas are in Mexico? (10) How far is it from Ottawa to Mexico? (11) Name the countries of Central America.

The climate becomes warmer as we approach the equator (p. 8), and as Mexico and Central America are so much farther south than Canada, it may naturally be understood that the climate is hot there. Notice that a large part of Mexico is south of the tropic of Cancer and that Central America is entirely south of it.

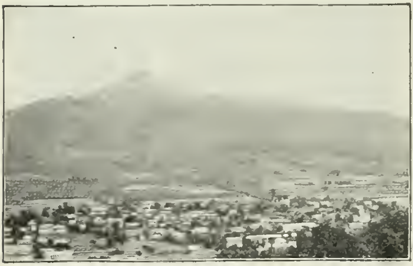
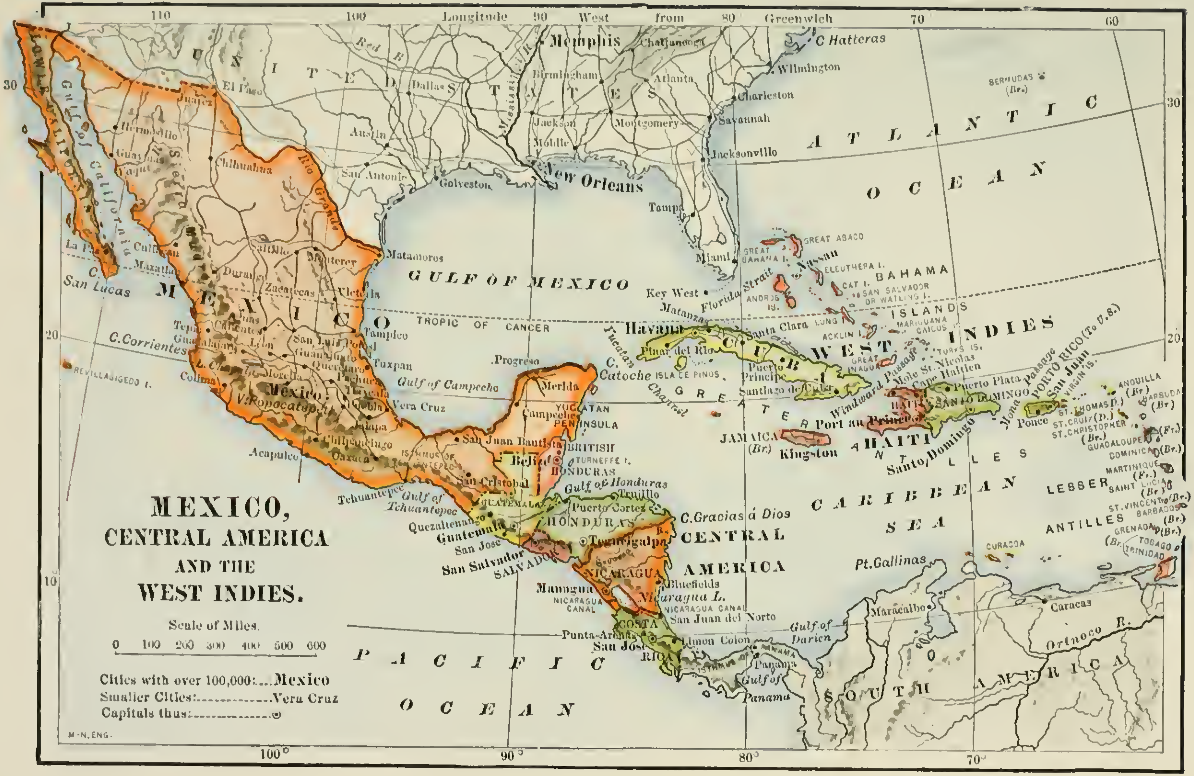


FIG. 160.

Popocatepetl, an extinct volcano, not far from Mexico City, and one of the highest mountain peaks on the continent. Notice that the top is white with snow, although in the torrid zone.

Near the seacoast of Mexico the land is low and the climate hot; but in the interior are many mountains and broad, arid plateaus. These



MEXICO, CENTRAL AMERICA AND THE WEST INDIES.

are a continuation of those in the western United States, and are so high that the climate is cool.

Some of the highest mountain peaks are old volcanoes made of lava that has poured forth from the earth. These peaks are so high that they are always covered with snow, although they are in the torrid zone (Fig. 160).

With such a variety of climate we shall of course find a variety of products. Much of the mountain region is too cold and rocky for farming; but as in the neighboring United States, these mountains yield valuable metals, especially silver.

Fig. 161.
A street in a Mexican town.

Part of the Mexican plateau is dry, from the same cause as affects that part of Canada and the United States which lies on the eastern side of the Rocky Mountains. What is this cause? For the same reason, its value consists largely in wild grass, on which great herds of cattle, sheep, and horses feed. Of what use are these animals? In other parts of the plateau there is enough rainfall for farming; but in most places crops can be raised only by the aid of irrigation.

Along the lowlands of the coast, the rainfall is heavy, and the products are much the same as on the low, damp plains of the Southern United States. What are they (p. 117)? Besides these, much coffee is grown on the slopes between the coastal plain and the high plateau. Have we found that product before in North America? Other products are pepper, sarsaparilla, and vanilla.

There is very little manufacturing in these countries, for two reasons. One is that coal is lacking. Why is that a good reason? The other is that many of the people are too ignorant to manage machinery.

The Spaniards once owned this part of North America, and their language is still spoken there. Most of the people living in Mexico and Central America are either pure Indians, or else Spaniards with Indian blood in their veins, called *half-breeds*. Only about one man in six is a full-blooded Spaniard.

Mexico is now a republic, like the United States, and its capital is the city of MEXICO, situated more than 7300 feet above the level of the sea. The coast on the east is regular, as you can see, so that there are few harbors. VERA CRUZ is the chief port, but the harbor is poor.

Central America is made up of several republics, each having a capital of its own. Many of the people are very ignorant, and there are frequent revolutions when ambitious generals try to overthrow the government.

At the present time Central America and the Isthmus of Panama are of interest because canals are being dug there to save vessels the long journey around South America. Examine the map (Fig. 30, opposite p. 27) to see how much distance will be saved in this way between New York and San Francisco. In Central America are dense tropical forests from which hard woods (such as mahogany and rosewood), dyes, rubber, and other valuable products are obtained. Bananas and other tropical products are exported.

XXI. THE WEST INDIES AND BERMUDA ISLANDS

Map Questions. — (1) Name the largest islands. (2) What group is farthest north? — north-east? (3) Into what groups are the other islands divided? (4) What waters do the West India Islands enclose? (5) How far is it from Florida to Cuba? (6) What is the capital of Jamaica? Of Cuba? (7) What large island is close to the South American coast?

The islands extending from the peninsula of Florida to the coast of South America form an *archipelago*, called the West Indies, from the mistake made by Columbus in supposing that he had reached the coast of India. These

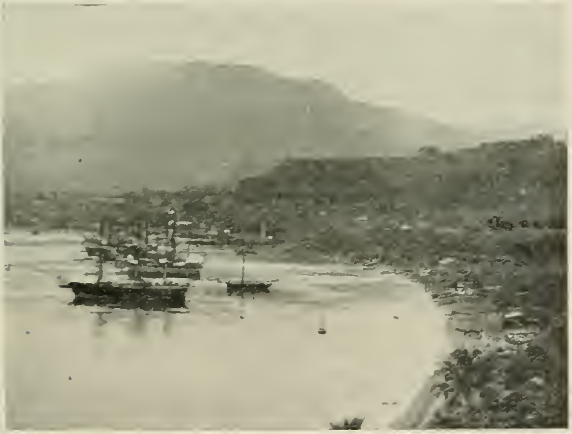


Fig. 162.

View of the city of St. Pierre, Martinique, and of the volcano, Mt. Pelée, which in May, 1902, exploded, completely destroying the city, and in one horrible blast of red-hot, sulphurous ashes and lava, caused the death of every living creature, about 30,000 in number. A similar outbreak took place at almost the same time in the adjoining island of St. Vincent from the volcano, La Soufrière, causing the death of nearly 2000 persons.

islands are very numerous, although many of them are mere rocks. They are really the highest parts of mountain ranges projecting above the sea, many of them of volcanic creation, and so situated that they separate the Caribbean Sea from the Gulf of Mexico and from the Atlantic Ocean. Some of the peaks in the larger islands rise from 8000 to 10,000 feet above the sea. It was one of the Bahamas that Columbus first sighted when he discovered America.

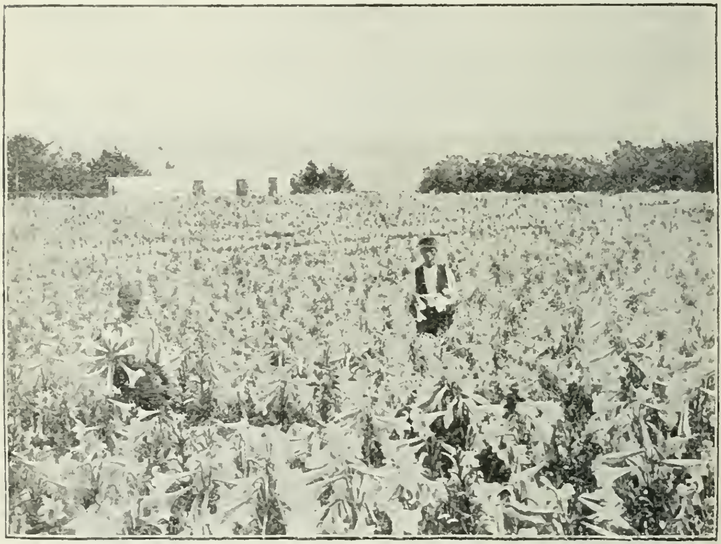


FIG. 163.

A field of Easter lilies at Bermuda. These are sent to New York and other cities.

Products.—As you will see from the map, all of these islands excepting some of the Bahamas are within the tropics. They have therefore a warm climate, and, since all of the islands are reached by the easterly or trade winds from the sea, the climate is damp. Tobacco, sugar, coffee, spices, and tropical fruits, such as bananas, are chiefly cultivated.

People. — These islands were originally taken possession of by Spain, but Great Britain, France, and other European countries have since occupied many of them. The descendants of the original native inhabitants have almost disappeared, and a very large portion of the present inhabitants are negroes, the descendants of slaves brought from South Africa to work on the plantations. Some of these negroes gained their independence and formed two republics, SANTO DOMINGO and HAITI, both on the island of Haiti.

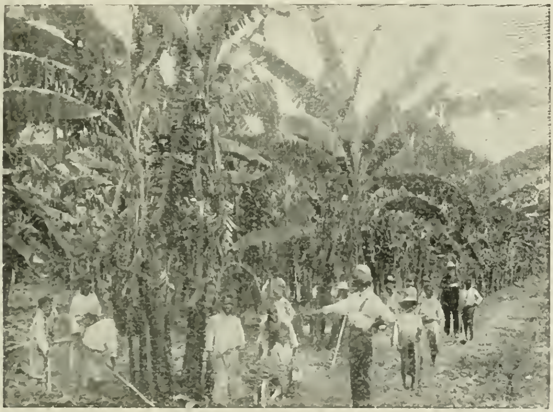


FIG. 164
Banana Plantation in Jamaica.

Cuba and Porto Rico. — The largest island is CUBA, which with PORTO RICO belonged to Spain. After the recent war these two islands came into the possession of the United States, and independence has lately been granted to Cuba.

HAVANA, the largest city in the West Indies, is the capital of Cuba and is noted for its tobacco.

British Islands. — A large number of the islands belong to Great Britain, and are divided into various groups for government. Of these JAMAICA is the largest, with KINGSTON the capital. Jamaica produces sugar, rum, and molasses, and exports large quantities of bananas to the United States. In TRINIDAD is a remarkable pitch lake apparently inexhaustible, from which is brought the pitch to make the asphalt pavements in our streets. BARBADOS is the most thickly populated place in the world, having over 1100 people to the square mile, more than a hundred times as many as there are in a square mile of the eastern provinces of Canada. NASSAU, the capital of the Bahama Islands, is a favorite winter resort. It exports large quantities of sponges.

FIG. 165.
Royal palms in Bermuda.

Sugar. — The cultivation of the sugar-cane was at one time almost the sole industry in the British West Indies, but the competition of beet-root sugar has greatly destroyed the market for the cane product.

Bermuda Islands. — These are a cluster of about 100 small islands, made of coral sand, as described on page 26. They belong to Great Britain, and only about 15 or 16 are inhabited. They are situated in the Atlantic Ocean, about 600 miles east from Cape Hatteras.

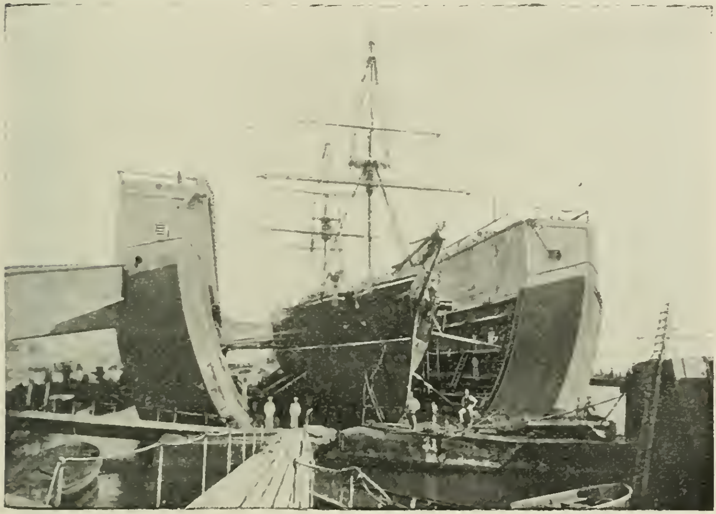


FIG. 166.
View of H. M. floating dry-dock at Bermuda.

The climate there is delightful in winter and has made these islands a favorite resort for visitors during that season. Early vegetables and Easter lilies are cultivated for shipment to the United States.

HAMILTON is the capital and seat of government.

Bermuda possesses a strongly fortified dock-yard for the British Navy.

XXII. SOUTH AMERICA

Map Questions. — (1) Compare the shape of South America with that of North America. (2) What great mountain ranges are there along the western side? (3) Which part of South America has no cold winter? (4) Which part has a climate much like that where you live? (5) What is the name of the longest river? (6) Where do you expect to find the most fertile regions? (7) Name the countries of South America.

Relief. — Great mountain chains were found in the western part of North America. What are their names? Through what countries do they extend? In South America there are also high mountains on the western side, called the Andes. The peaks of the Andes are higher than those in North America, and there are many active volcanoes among them.

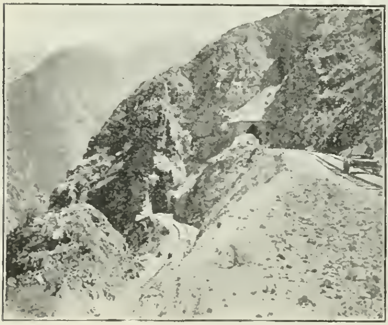
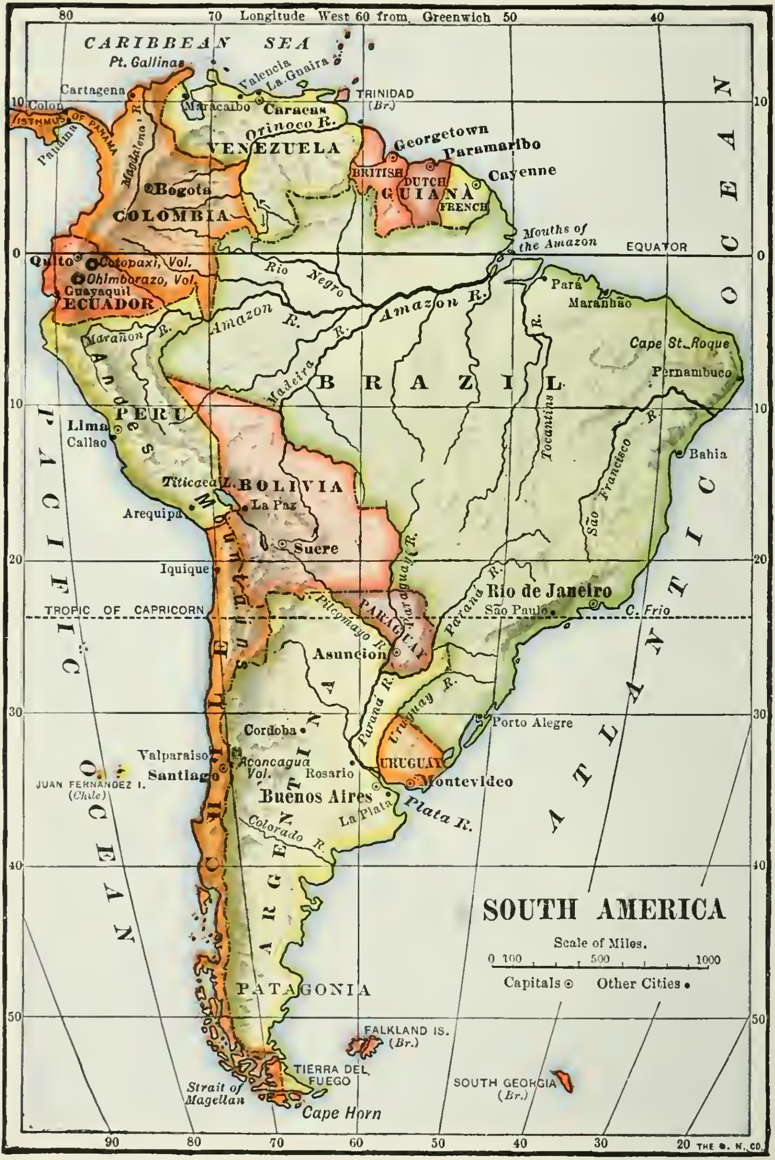


Fig. 168.

Two tunnels on a railway line that crosses the high Andes of Peru.

Besides the Andes, the map shows a highland region in Eastern Brazil and a smaller one between the Amazon and Orinoco rivers, forming the divide between them.

The remainder of South America is mainly lowland, drained by three mighty rivers. What are their names? Where does each rise? In what direction does each flow? Which drains the longest slope?


SOUTH AMERICA
Scale of Miles.
0 100 500 1000
Capitals ⊙ Other Cities •
Longitude West 60 from Greenwich
80
70
50
40
CARIBBEAN SEA
Pt. Gallinas
Cartagena
Colon
ISTHMUS OF PANAMA
Panama
Valencia
La Guaira
TRINIDAD (Br.)
Maracaibo
Caracas
Orinoco R.
VENEZUELA
Magdalena R.
Bogota
COLOMBIA
Georgetown
Paramaribo
Cayenne
BRITISH
DUTCH
GUIANA
FRENCH
Mouths of the Amazon
EQUATOR
Quito
Cotopaxi, Vol.
Chimborazo, Vol.
Guayaquil
ECUADOR
Rio Negro
Amazon R.
Pará
Maranhão
Marañon R.
Madeira R.
Cape St. Roque
Pernambuco
BRAZIL
Tocantins R.
São Francisco R.
Bahia
PERU
Lima
Callao
Andes Mts.
Titicaca L.
BOLIVIA
La Paz
Arequipa
Sucre
Iquique
Paraguay R.
Paraná R.
Rio de Janeiro
São Paulo
C. Frio
TROPIC OF CAPRICORN
Pilcomayo R.
PARAGUAY
Asuncion
Uruguay R.
Porto Alegre
URUGUAY
Montevideo
Cordoba
Valparaiso
Santiago
Aconcagua Vol.
Rosario
Buenos Aires
La Plata
Plata R.
JUAN FERNANDEZ I. (Chile)
Colorado R.
CHILE
ARGENTINA
PATAGONIA
FALKLAND IS. (Br.)
TIERRA DEL FUEGO
SOUTH GEORGIA (Br.)
Strait of Magellan
Cape Horn
PACIFIC OCEAN
ATLANTIC OCEAN
10
0
10
20
30
40
50
90
80
70
60
50
40
30
20
THE G. N. CO.

Climate. — The products of the three valleys greatly depend upon their climate; let us, therefore, see how much heat and moisture they have.

Where does the equator cross the continent? Where does the tropic of Capricorn cross it? How much of the continent, then, is in the torrid zone? Where is the coldest part? In which zone?

From the answers to these questions we see that much more than half the continent must have a warm climate; but that the southern part has a temperate climate more like our own. In which months does summer come to this region?

In regard to the moisture in the torrid or tropical part of South America the rains are very heavy. The reason for this is that the air becomes heated and is thus made very light; it is then forced to rise to such a height that the vapor is condensed, causing heavy showers (see Our Home. p. 74).

There is less rainfall in the south temperate zone, and still less in the narrow strip west of the central part of the Andes, in Chile and Peru. There the climate is quite arid because the principal winds are from the south and east, so that the air loses its vapor in passing over the mountains and descends upon the Pacific slope as dry, parching winds.

History. — Knowing now the chief facts about the relief and climate, let us look at the countries themselves. After the discovery of South America by Columbus the Spaniards settled in many parts, obtaining great quantities of gold and silver, especially in the Andes. Nearly all of South America once belonged to Spain, excepting Brazil, which was settled and for a long time owned by the Portuguese. Although the South American countries are now independent nations, the Spanish language is still spoken nearly everywhere, excepting in Brazil, where Portuguese is used.

Brazil. — This is the largest country, being nearly as large as Canada or the United States (including Alaska); but it has more than three times as many inhabitants as Canada. Much of the great Amazon valley consists of forest-covered plains, called *silvas*, in which the trees are so close together, and there is such a mat of vines and underbrush, that it is extremely difficult for one to make his way through. From what was just said about the climate, you may be able to give the reason for such rank growth.

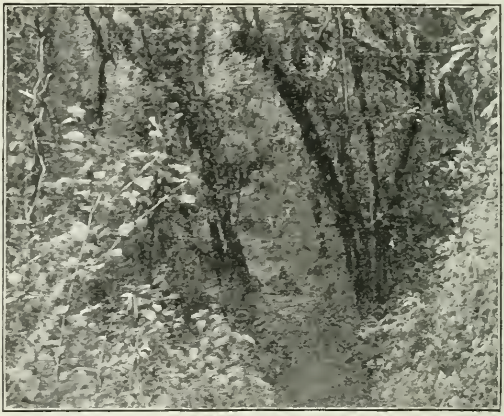


FIG. 169.

A path through the dense tropical forest of South America.

You will find pictures of some of the wild forest animals in Figure 18, page 19. What are their names?

Of course this forest is not a good home for men, especially since much of the land is frequently flooded; in fact, Indians are almost the only people living there. They make a living by hunting, fishing, and selling rubber from the rubber tree that grows in the woods.

Rubber is obtained by cutting a hole in the bark and catching the milky fluid that flows forth. After being warmed over a fire to make it more solid, it is sent down the river in boats to PARA and then shipped to many parts of the world. Bicycle tires and overshoes are made from it. See how long a list of other rubber articles you can name.

Another common tree is the cocoa tree, on which grow the beans from which cocoa and chocolate are made.

The rivers are almost the only roadways in this great section, so that it is mainly a great wilderness.

Most of the inhabitants of Brazil live in the eastern part along the coast. Some of them are white people, but many are either Indians or negroes, or of mixed blood, as in Mexico. You will notice several cities on the coast, of which RIO DE JANEIRO, the capital, is the largest, being more than twice the size of Montreal. It has a splendid harbor.

There must certainly be some important industries in this region to cause a city to become so large. Besides the raising of cattle upon the plateau of Eastern Brazil, farming is an important industry there. The principal crops are the same as those which you have already learnt are found in warm countries; namely, cotton, sugar, tobacco, and coffee. The last is most important, and Rio de Janeiro is the chief export town, which is the reason why some of our coffee is called Rio coffee.

Venezuela and Guiana. — North of Brazil is Venezuela, which includes most of the Orinoco valley. Here are broad plains, called *llanos*, producing excellent grass, so that cattle raising is one of the important industries. Coffee and cocoa are also cultivated. The capital and largest city is CARACAS, which is located several miles from the coast upon land more than half a mile above the sea. What advantage do you see in such a position?

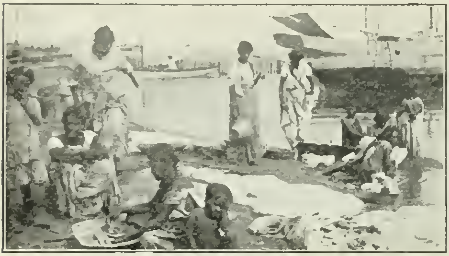


FIG. 170.

Native Indian women washing clothes in Venezuela. Do you see in the picture any reason for thinking it is warm there?

Just north of the mouth of the Orinoco River is Trinidad Island, which belongs to Great Britain. On that island is a great pitch lake, from which much of the asphalt used in our street pavements is obtained (see p. 138).

All of the countries of South America are republics excepting Guiana, east of Venezuela, which belongs to three European nations. What are their names? And what is the capital of each section of Guiana? The products of these countries are much the same as those of Brazil and Venezuela.

La Plata Countries. — The country south of Brazil, drained by the Plata River and its tributaries, is one of the most productive parts of South America. Here, at the mouth of the Plata River in Argèntina, is BUENOS AIRES, the largest city on the continent. Across the wide river mouth is MONTEVIDEO, another large city, in Uruguay.

What other small country lies between Argentina and Brazil?

The plains in this section of the country are called *pampas*; and because of their excellent grass one of the chief industries is ranching. Since most of the country is in the temperate zone, corn and wheat are important farm products: and in the warm northern part, near the tropics, tobacco and sugar-cane are raised. This part of South America corresponds most nearly in climate and products to Canada and the United States.

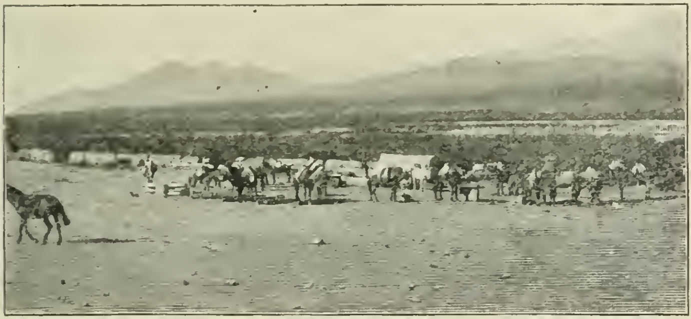


FIG. 171.

A scene on the pampas of Argentina.

Goods are still carried upon the rivers in Argentina, but there are also many railways in that country, more, in fact, than in any other part of South America.

Andean Countries. — The countries in the western part of South America are very mountainous, since each of them includes a part of the Andean chain. As you might expect, then, one of the principal industries is mining; and immense quantities of gold and silver have been found there. What are the names of these countries?

As there are many active volcanoes in the Andes Mountains, the countries of that part of South America are subject to earthquakes, some of which have been very disastrous, destroying much property and many lives.

Observe that most of the cities are not upon the coast. This is partly because they have grown up in the mining districts among the mountains, and partly because there are so few good harbors. Many of the interior cities have seaports, as CALLAO in Peru, the seaport of LIMA. Find others.

FIG. 172.

A scene among the lofty snow-capped mountains of Chile.

VALPARAISO, in Chile, is the largest port on the Pacific coast; but SANTIAGO the capital, situated fifty miles inland, and about one-half mile above the sea, is more than twice as large. Notice how long and narrow Chile is; what reason can you give for that?

Farming is possible in the northern part of the western coast, where the rainfall is heavy; but farther south, as in Peru and northern Chile, agriculture is impossible without irrigation. The desert of Atacama, a strip of land between the Andes and the Pacific Ocean, extends for a thousand miles along this coast, and there a shower of rain rarely occurs. In southern Chile, however, the rainfall is moderate, and many people have settled there, because the farming and grazing are excellent.

Which of the Andean countries has no seacoast? Is that any disadvantage? One country is called Ecuador, which is the Spanish word for equator. Why is that a fitting name? Notice that Colombia has seacoast on the two oceans and includes the Isthmus of Panama. What cities do you find on the two sides of the Isthmus? They are connected by a railway. Why is this important?

The Isthmus of Panama is, as you can see by the map, the narrowest part of the continent. A railway, 47½ miles long, connects Panama with Colon; and a ship canal has been partly constructed at an enormous cost to connect the two oceans. It will be 46 miles long.

Tierra del Fuego. — This is the extreme southern part of South America, and is separated from the continent by the Strait of Magellan. This strait forms a passage for steamships, but as it is narrow and rocky, and the weather there is generally stormy and foggy, sailing ships must pass round Cape Horn. This is a point dreaded by sailors on account of the tempestuous weather usually encountered there.

The FALKLAND ISLANDS and SOUTH GEORGIA, west of the extreme southern point of South America, are almost the only islands in the western South Atlantic Ocean and belong to Great Britain. The few people who live there raise sheep and export wool.

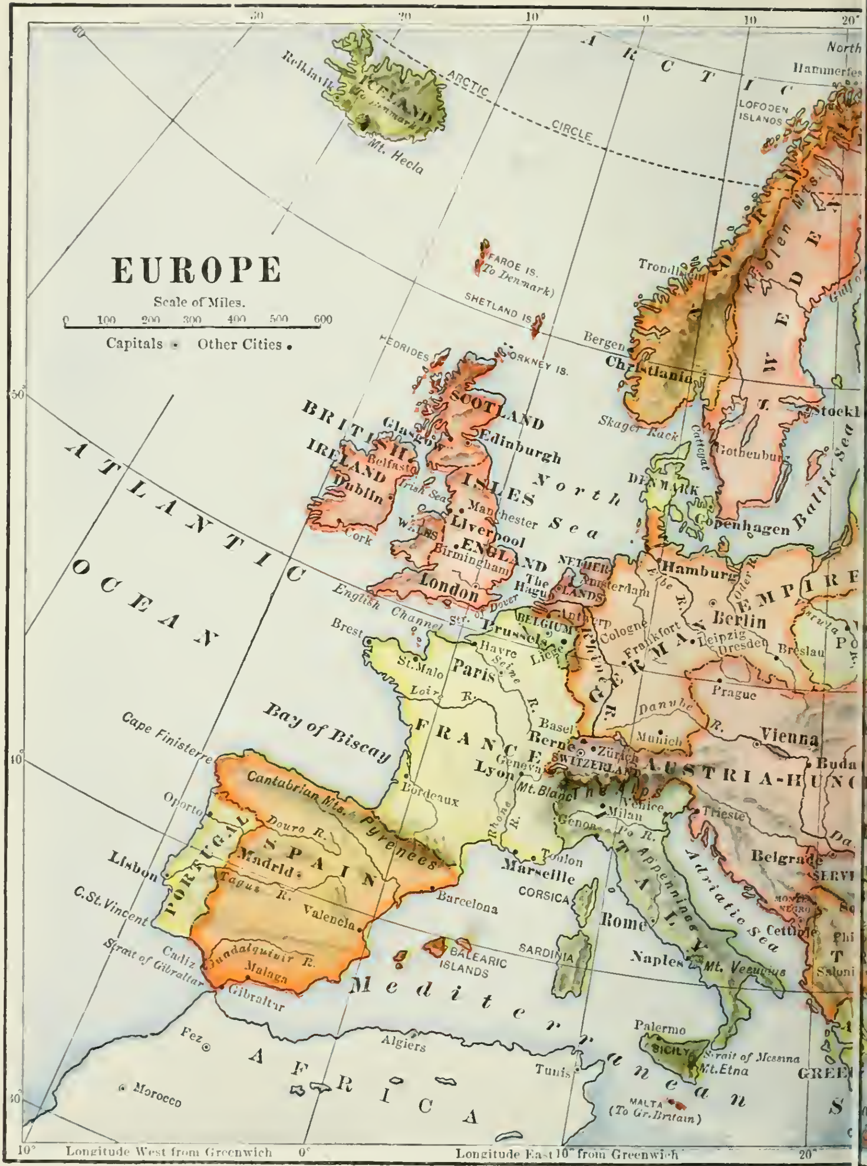
What small group of islands is in the Pacific Ocean west of Santiago in Chile?

XXIII. EUROPE

Map Questions. — (1) On page 20 it was stated that Eurasia consisted of two continents, Europe and Asia. Trace the boundary line between them, naming the mountains and waters that form it. (2) One of the seas has no outlet; which one is it? What kind of water would you expect to find in that sea? (3) How does the coast line of Europe compare with that of South America? Of North America? (4) Would you expect to find many good harbors? (5) Name the largest peninsulas and draw an outline map to show them? (6) Where are the highest mountains? (7) One of the Alpine peaks is Mt. Blanc. What have you already learned about it? (See Our Home, p. 20.) (8) Where are the plains? Which very large country is made up mainly of plains? Find the position of Sicily and of Sardinia. (9) In what zones is Europe? (10) How do you think its climate would compare with that of Canada? (11) With what part of Canada do the British Isles correspond in the temperate zone? (12) What countries in Europe do you know something about? (13) By what route would you go from Montreal to one of them? (See Fig. 30.)

Europe is only a little larger than Canada, or than the United States with Alaska, but contains more than four times as many inhabitants as the whole of North America. These are separated into a score of nations with a different language for nearly every one. (Our Home, Fig. 94, p. 95.)

Inasmuch as our country and this continent were first discovered by Europeans, and as various European nations have furnished most of the civilized population, Europe may be regarded as the Fatherland of us all.


EUROPE
Scale of Miles.
0 100 200 300 400 500 600
Capitals ◉ Other Cities •
30
20
10
0
10
20
60
50
40
30
Longitude West from Greenwich
0°
Longitude East 10° from Greenwich
10°
20°
ARCTIC
CIRCLE
North
Hammerfes
LOFODEN ISLANDS
Reikiavik
ICELAND (To Denmark)
Mt. Hecla
FAROE IS. (To Denmark)
SHETLAND IS.
ORKNEY IS.
HEBRIDES
Trondhjem
Bergen
Christiania
Kiölen Mts.
SWEDEN
Gulf of
Stockh
Skager Rack
Cattegat
Gothenburg
DENMARK
Copenhagen
Baltic Sea
BRITISH ISLES
SCOTLAND
Glasgow
Edinburgh
IRELAND
Belfast
Dublin
Cork
Irish Sea
Manchester
Liverpool
WALES
ENGLAND
Birmingham
London
North Sea
ATLANTIC OCEAN
English Channel
Str. of Dover
NETHERLANDS
Amsterdam
The Hague
BELGIUM
Antwerp
Brussels
Liège
Hamburg
Elbe R.
Oder R.
GERMAN EMPIRE
Berlin
Cologne
Frankfort
Leipzig
Dresden
Breslau
Vistula
Rhine R.
Brest
St. Malo
Havre
Seine
Paris
Loire R.
FRANCE
Bay of Biscay
Prague
Danube R.
Munich
Vienna
Basel
Berne
Zürich
Geneva
SWITZERLAND
Lyon
Mt. Blanc
The Alps
AUSTRIA-HUNG
Buda
Bordeaux
Rhone R.
Cape Finisterre
Cantabrian Mts.
Pyrenees
Oporto
PORTUGAL
Douro R.
SPAIN
Madrid
Tagus R.
Lisbon
C. St. Vincent
Valencia
Barcelona
Marseille
Toulon
Milan
Venice
Trieste
Genoa
Po R.
ITALY
Appennines
Adriatic Sea
Belgrade
SERVI
MONTENEGRO
Cettinje
CORSICA
Rome
SARDINIA
Naples
Mt. Vesuvius
Saloni
Cadiz
Strait of Gibraltar
Guadalquivir R.
Malaga
Gibraltar
BALEARIC ISLANDS
Mediterranean
Palermo
SICILY
Strait of Messina
Mt. Etna
GREE
MALTA (To Gr. Britain)
Fez
Morocco
Algiers
Tunis
AFRICA

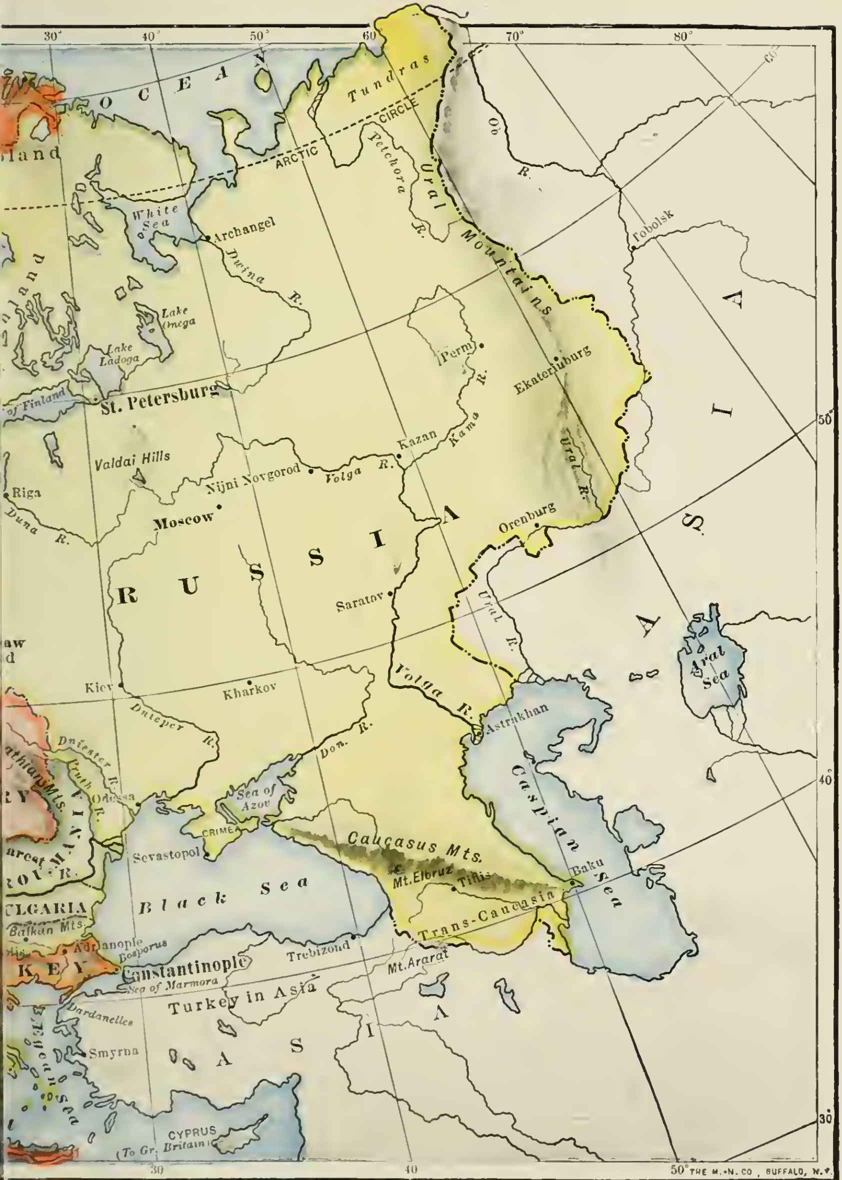
OCEAN
Tundras
ARCTIC CIRCLE
Petchora R.
Ural Mountains
Ob R.
White Sea
Archangel
Dwina R.
Lake Onega
Lake Ladoga
of Finland
St. Petersburg
Perm
Kama R.
Ekaterinburg
Tobolsk
Kazan
Valdai Hills
Nijni Novgorod
Volga R.
Riga
Duna R.
Moscow
Ural R.
Orenburg
RUSSIA
ASIA
Saratov
Aral Sea
Kiev
Kharkov
Dnieper R.
Volga R.
Astrakhan
Dniester R.
Pruth R.
Odessa
Don R.
Sea of Azov
CRIMEA
Sevastopol
Caspian Sea
Caucasus Mts.
Mt. Elbruz
Tiflis
Baku
Black Sea
Trans-Caucasia
BULGARIA
Balkan Mts.
Adrianople
Bosporus
Trebizond
Mt. Ararat
Constantinople
Sea of Marmora
Turkey in Asia
Dardanelles
Smyrna
ASIA
CYPRUS
(To Gr. Britain)
30°
40°
50°
60°
70°
80°
50°
40°
30°
30
40
50°
THE M.-N. CO., BUFFALO, N.Y.

Fig. 173

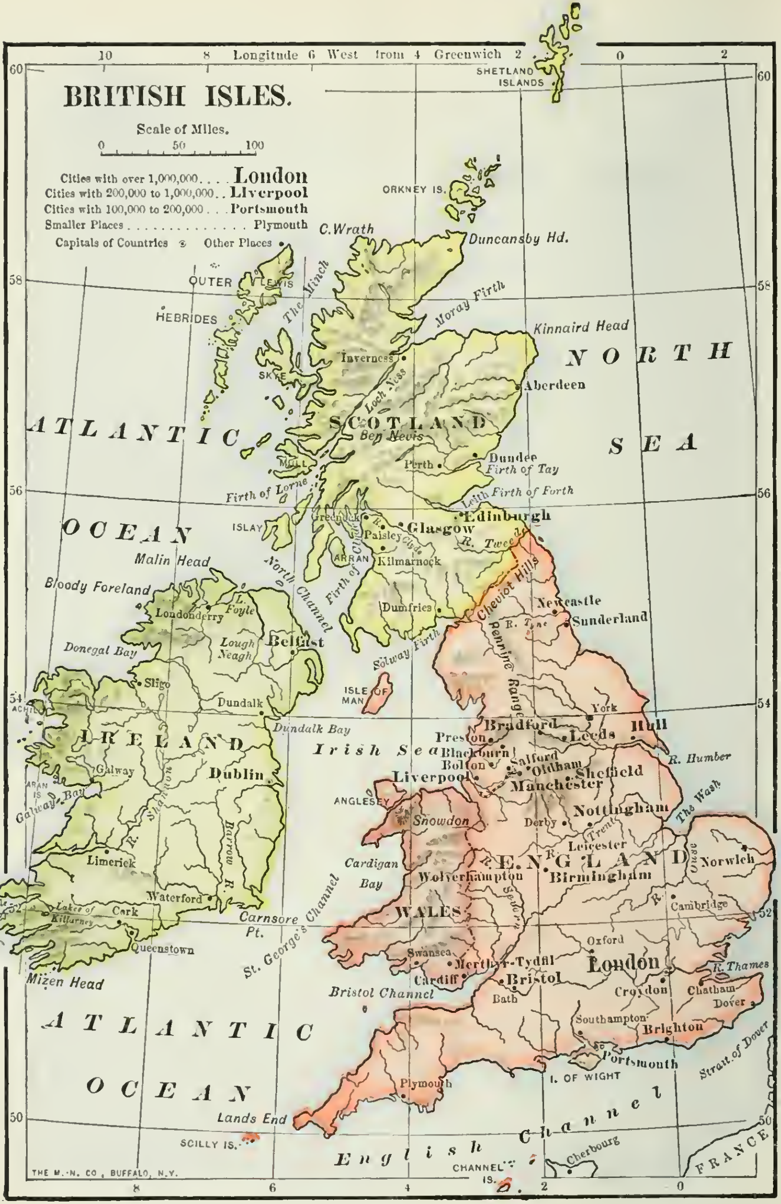

BRITISH ISLES.
Longitude West from Greenwich
10
8
6
4
2
0
2
60
58
56
54
52
50
Scale of Miles.
0
50
100
Cities with over 1,000,000 . . . . London
Cities with 200,000 to 1,000,000 . . Liverpool
Cities with 100,000 to 200,000 . . . Portsmouth
Smaller Places . . . . Plymouth
Capitals of Countries
Other Places
SHETLAND ISLANDS
ORKNEY IS.
C. Wrath
Duncansby Hd.
OUTER
LEWIS
HEBRIDES
The Minch
Moray Firth
Kinnaird Head
NORTH
SEA
Inverness
SKYE
Loch Ness
Aberdeen
ATLANTIC
SCOTLAND
Ben Nevis
MULL
Perth
Dundee
Firth of Tay
Firth of Lorne
Leith
Firth of Forth
ISLAY
Greenock
Edinburgh
Glasgow
R. Clyde
Paisley
R. Tweed
ARRAN
Kilmarnock
Firth of Clyde
OCEAN
Malin Head
North Channel
Cheviot Hills
Bloody Foreland
L. Foyle
Newcastle
Londonderry
Dumfries
R. Tyne
Sunderland
Lough Neagh
Belfast
Donegal Bay
Solway Firth
Pennine Range
Sligo
ISLE OF MAN
54
ACHILL
Dundalk
York
Dundalk Bay
Bradford
Hull
IRELAND
Irish Sea
Preston
Leeds
Blackburn
R. Humber
Bolton
Salford
Oldham
Sheffield
Galway
Dublin
Liverpool
Manchester
R. Shannon
ARAN IS
Galway Bay
ANGLESEY
The Wash
Nottingham
Snowdon
Derby
Barrow R.
Trent
Leicester
Cardigan Bay
R. Ouse
Norwich
Limerick
ENGLAND
Wolverhampton
Birmingham
R. Severn
Waterford
WALES
Cambridge
Dingle B.
Lakes of Killarney
Cork
Carnsore Pt.
St. George's Channel
Oxford
Queenstown
Swansea
Merthyr-Tydfil
London
R. Thames
Cardiff
Bristol
Mizen Head
Bristol Channel
Bath
Croydon
Chatham
Dover
ATLANTIC
Southampton
Brighton
Portsmouth
Strait of Dover
OCEAN
Plymouth
I. OF WIGHT
English Channel
Lands End
SCILLY IS.
CHANNEL IS.
Cherbourg
FRANCE
THE M.-N. CO., BUFFALO, N.Y.

Fig. 174

XXIV. THE BRITISH ISLES

MAP QUESTIONS. — (1) Walk towards the British Isles. (2) What two large islands do they include? (3) What waters separate these two? (4) What three groups of islands are north of Scotland? (5) What island is in the Irish sea? (6) What sea is east of Great Britain? (7) What country of Europe is nearest to England? (8) What waters separate the two? (9) Make a sketch map of the British Isles. (10) Compare the west coast with the east. (11) What islands near the French coast belong to Britain?

Our Mother Country. — The people in Europe to whom we are most closely related live on the small group of islands, called the BRITISH ISLES, which lie just west of the mainland. This is often called our "mother country." Can you tell why?

Extent. — There are two large islands, GREAT BRITAIN and IRELAND, besides many small ones. Into what two parts is the island of Great Britain divided?

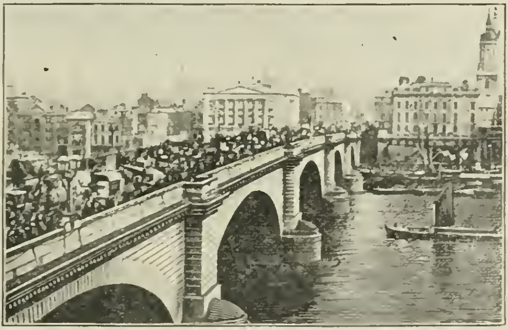


FIG. 175.

London bridge across the Thames, over which a busy throng is almost constantly passing.

Although the British Isles do not comprise much more than one-half the area of Ontario, they contain seven times as many people as the whole Dominion of Canada. They are the centre of the British Empire, and the centre of the commerce of the world.

Position. — Judging from their position one might expect these islands to be too cold for agriculture, for they are farther north than the mouth of the St. Lawrence River, and occupy the same position as bleak and barren Labrador. But the climate is not colder than that of southern Canada. The reason for this is that the western coast of Europe is warmed by a broad current or *drift* of warm ocean water, known as the Gulf Stream. This flows from the warm Southern Seas north-easterly along the North American shore, in the Atlantic Ocean, and continues across to the coast of Europe. The air above it becomes warmed, and, since the winds of Europe blow chiefly

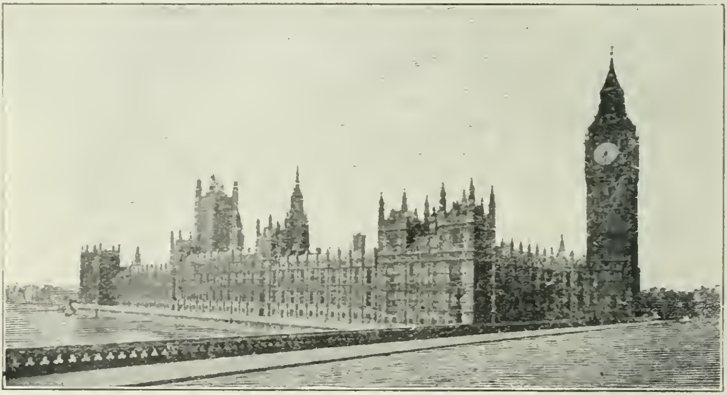


Fig. 176.
The House of Parliament.

from the west, they carry the warmth with them and produce a climate much milder than one would otherwise expect.

Commerce. — In spite of the small extent of the British Isles, the position they occupy is most favorable for commerce, and the largest city in the world is LONDON, the capital. Here, although it is more than three hundred miles farther north than Quebec, snow is rarely seen.

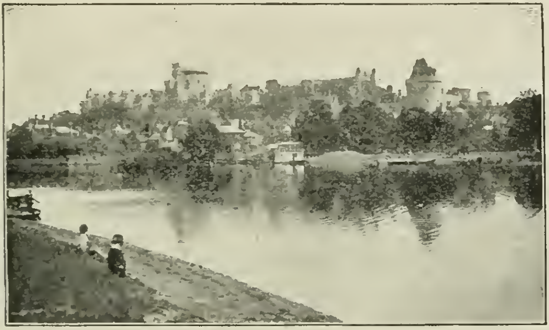


FIG. 177.

The Thames River and Windsor Castle, a royal palace.

London is the central seat of government for the British Isles, as well as for the whole British Empire. Here are situated the House of Parliament (Fig. 176) and Buckingham Palace, the city residence of the King. Besides this latter there are Windsor, Osborne, Balmoral, and other royal palaces in different parts of the country.

You have read about the Canadian form of government for the Dominion (Our Home, p. 123). This has been modelled on the British system; the King (in Canada represented by the Governor-General), the Lords (in Canada, the Senate), and the Commons, the representatives of the people. King Edward VII. is King of Great Britain and Ireland, and of the British Dominions beyond the sea, and also Emperor of India. There are no local Houses of Parliament for the separate countries, as in Canada for the different provinces.

Great Britain has more manufacturing, more freight trade, a greater number of vessels upon the sea, than any other nation in existence. There are, of course, reasons for these remarkable facts, and one of the most important is the mineral wealth of the country.

Mining. — One of the resources of the British Isles which attracted people in the early times was the tin mines in the south-western part of the country. This metal is not mined in many parts of the world, but has always been in great demand. But the abundance of two other minerals, coal and iron ore, has been the main foundation of Britain's progress. These are usually found close together in different parts of ENGLAND and SCOTLAND, and this combination has made it possible to build iron steamships and machinery there to the best advantage.

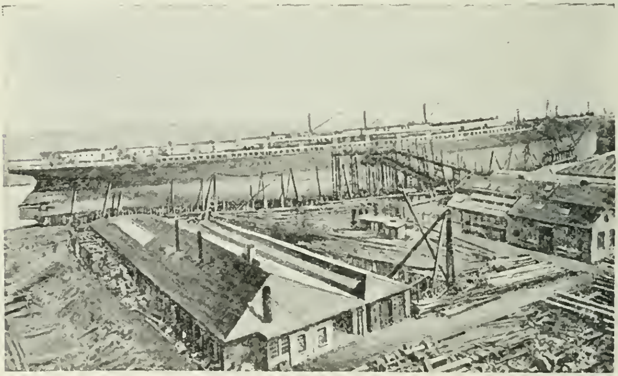


FIG. 178.

View of a shipyard on the Clyde. The "Lucania," one of the largest steamships afloat, ready to be launched.

BIRMINGHAM is the great centre for the iron trade in England. But GLASGOW is the greatest centre for steel shipbuilding, which industry is also largely carried on at BELFAST, at LONDON, and at NEWCASTLE. Coal is shipped chiefly from NEWCASTLE and CARDIFF. Other important seaports are BRISTOL, HULL and SOUTHAMPTON in England, and LEITH (for Edinburgh), GREENOCK, DUNDEE, and ABERDEEN in Scotland. At QUEENSTOWN, and MOVILLE near LONDONDERRY, the steamships call on their way to and from Canada and the United States.

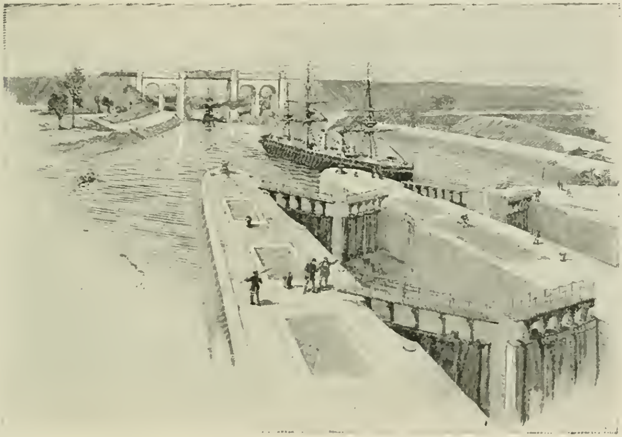


FIG. 179.
The Manchester Ship Canal.

Agriculture. — WALES and much of Scotland are too hilly to be well adapted to agriculture, but many cattle and sheep are raised there. In England and in the lowlands of Scotland, as the land and climate are better suited for that purpose, there is much more farming. The damp air and the rain from the prevailing westerly winds blowing from the ocean cause the grass to grow well. Hay is, therefore, an important crop, and there is rich pasture land for the numerous sheep and cattle. But as you learned in Our Home (p. 101) there are so many people in the country, that there is not land enough to grow sufficient crops to feed all of them. For this reason, enormous quantities of provisions and grain have to be imported from Canada and other countries.

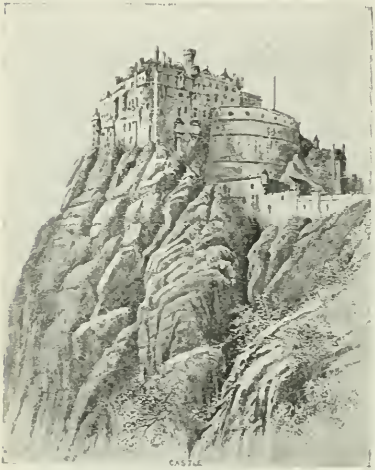


FIG. 180.
Edinburgh Castle, a celebrated old historic fortress.

Manufacturing. — Mining and agriculture are not the chief occupations. Having much wool from the large flocks of sheep raised on the fine pasture lands, the people long ago learned to make woollen cloth. In addition to that they purchased cotton from other countries, the United States, Egypt, and India, and made cotton goods. The centre for this manufacturing is MANCHESTER. Thirty-five miles from it is LIVERPOOL, which, next to London, is the greatest seaport in Britain. Recently a ship canal, called the Manchester Canal (Fig. 179), has been built, connecting these two cities. Find them on the map. For woollen manufactures BRADFORD, LEEDS, and other cities in the same district are also important. SHEFFIELD is noted for its cutlery.

The lowland portion of Scotland, especially in the neighborhood of Glasgow and EDINBURGH, is noted for its cotton and woollen factories.

IRELAND is not so much interested in manufacturing, although linen is an important product in the north, and iron shipbuilding is a large industry at Belfast. It is really, to a great extent, a farm, furnishing cattle, butter, eggs, and other farm products for the English markets.

FIG. 181.
View in the celebrated Lakes of Killarney.

The air there is so moist that the grass is kept fresh and green, and on that account Ireland is often called the Emerald (or Green) Isle. The two largest cities are naturally on the side next to England. What are their names?

Industries. — From the position of the British Isles, surrounded by water, it is natural that many of the inhabitants become trained to a seafaring life, either as traders or fishermen. The shallow banks and the waters of the North Sea abound with cod, haddock, flat fish, and herring, just as our Gulf of St. Lawrence and Banks of Newfoundland do, and afford employment to many thousands of men.

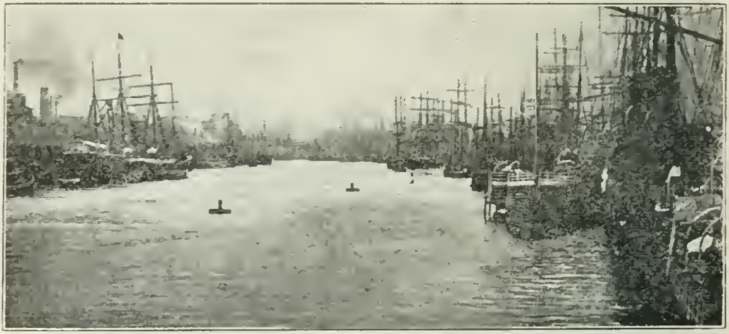


FIG. 182.
The Clyde, at Glasgow.

The peculiar energy and inventive genius of the British people kept them in advance of the Continental nations, who were always more or less engaged in warring against

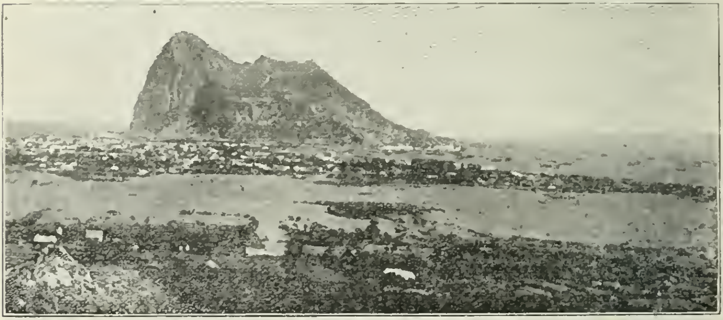


FIG. 183.
The Rock of Gibraltar, a British fortress, guarding the entrance to the Mediterranean Sea. This view is taken from the Spanish coast, showing the narrow neck of land which connects it with the mainland.

each other. It was the Scotsman, James Watt, who invented the modern steam engine, and it was George Stephenson who invented the first locomotive. The very smallness of the country is another advantage; for, no matter where a factory may be situated, it is near the coal fields and within a few miles of a shipping point.

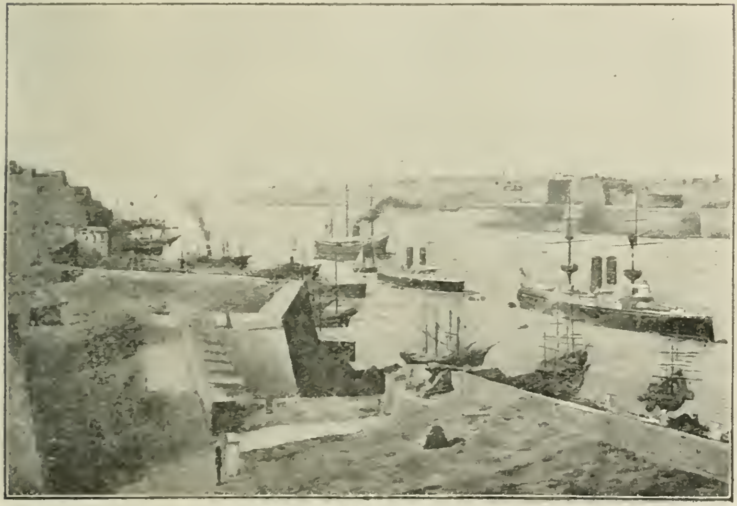


FIG. 184.

Harbor of Valetta, the chief town of the island of Malta; the headquarters for the British fleet in the Mediterranean Sea.

Shipping. — To guard the coast against enemies made a fleet necessary. This fleet made Great Britain mistress of the seas. To build, equip, and maintain this fleet, great dockyards and arsenals have been built at PORTSMOUTH, PLYMOUTH, CHATHAM, and WOOLWICH (near London). Having so many ships, the British have been led to explore countries and to carry on trade in all parts of the world.

The narrow limits of their own country caused many to look out for other lands, and so the foundation of Britain's Colonial Empire was laid. Thus, Great Britain has come into possession of Canada, Australia, India, a large part of Africa, and many islands besides. These are called *colonies* and form part of the British Empire.

You have learnt what important depots for the British fleet there are in Canada, at Halifax and Esquimalt, and also at Bermuda. To protect her European commerce, and to keep the way open to the Suez Canal, Britain has the strong fortress of Gibraltar at the entrance to the Mediterranean Sea, and the important island of Malta, between Sicily and the African coast.

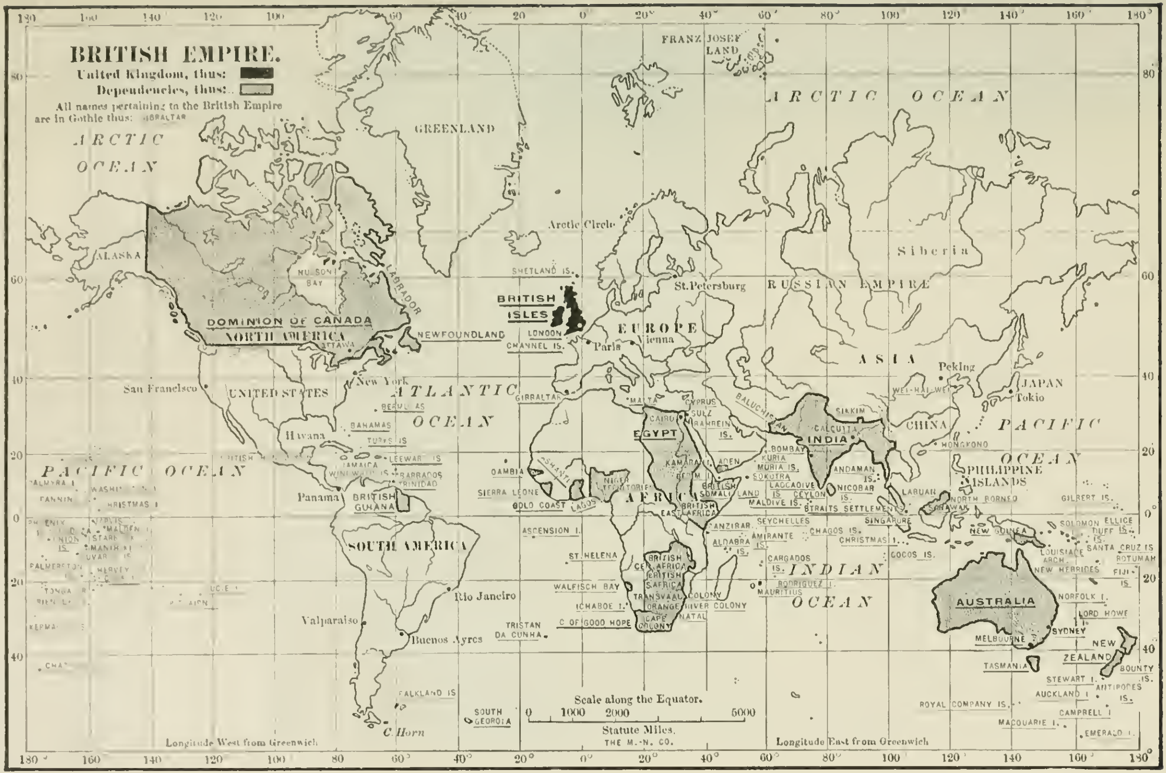

BRITISH EMPIRE.
United Kingdom, thus:
Dependencies, thus:
All names pertaining to the British Empire are in Gothic thus: GIBRALTAR
ARCTIC OCEAN
ALASKA
DOMINION OF CANADA
NORTH AMERICA
HUDSON BAY
LABRADOR
OTTAWA
NEWFOUNDLAND
GREENLAND
Arctic Circle
SHETLAND IS.
BRITISH ISLES
LONDON
CHANNEL IS.
FRANZ JOSEF LAND
ARCTIC OCEAN
St. Petersburg
RUSSIAN EMPIRE
Siberia
EUROPE
Paris
Vienna
ASIA
Peking
JAPAN
Tokio
San Francisco
UNITED STATES
New York
ATLANTIC OCEAN
BERMUDAS
BAHAMAS
TURKS IS
Havana
LEEWARD IS
JAMAICA
WINDWARD IS
BARBADOS
TRINIDAD
BRITISH HONDURAS
PACIFIC OCEAN
Panama
BRITISH GUIANA
SOUTH AMERICA
Rio Janeiro
Valparaiso
Buenos Ayres
FALKLAND IS
C. Horn
SOUTH GEORGIA
GIBRALTAR
MALTA
CYPRUS
SUEZ
CAIRO
EGYPT
BAHREIN IS.
BALUCHISTAN
SIKKIM
CALCUTTA
INDIA
BOMBAY
KURIA MURIA IS.
ADEN
SOKOTRA
GAMBIA
ASHANTI
SIERRA LEONE
GOLD COAST
LAGOS
NIGER TERRITORIES
AFRICA
KAMARAN
BRITISH SOMALI LAND
BRITISH EAST AFRICA
ZANZIBAR
ALDABRA IS.
SEYCHELLES
AMIRANTE IS.
CHAGOS IS.
LACCADIVE IS
CEYLON
MALDIVE IS.
ANDAMAN IS.
NICOBAR IS.
STRAITS SETTLEMENTS
SINGAPORE
CHRISTMAS I.
COCOS IS.
CARGADOS IS.
RODRIGUEZ I.
MAURITIUS
INDIAN OCEAN
ASCENSION I.
ST. HELENA
BRITISH CENTRAL AFRICA
BRITISH S. AFRICA
TRANSVAAL COLONY
ORANGE RIVER COLONY
NATAL
CAPE COLONY
WALFISCH BAY
ICHABOE I.
C. OF GOOD HOPE
TRISTAN DA CUNHA
CHINA
WEI-HAI-WEI
HONGKONG
PACIFIC OCEAN
PHILIPPINE ISLANDS
LABUAN
NORTH BORNEO
SARAWAK
NEW GUINEA
GILBERT IS.
ELLICE IS.
SOLOMON IS.
DUFF IS.
SANTA CRUZ IS
ROTUMAH
LOUISIADE ARCH.
NEW HEBRIDES
FIJI IS.
AUSTRALIA
NORFOLK I.
LORD HOWE
SYDNEY
MELBOURNE
TASMANIA
NEW ZEALAND
BOUNTY IS.
ANTIPODES IS.
STEWART I.
AUCKLAND I.
CAMPBELL I.
MACQUARIE I.
EMERALD I.
ROYAL COMPANY IS.
PALMYRA I.
WASHINGTON I.
FANNING I.
CHRISTMAS I.
PHOENIX IS.
MALDEN I.
STARBUCK I.
UNION IS.
MANIHIKI IS.
JARVIS
PALMERSTON
HERVEY IS.
TONGA
PITCAIRN
KERMADEC
CHATHAM
Scale along the Equator.
0 1000 2000 5000
Statute Miles.
THE M.-N. CO.
Longitude West from Greenwich
Longitude East from Greenwich
180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180
80 60 40 20 0 20 40

FIG. 185.

XXV. OTHER COUNTRIES OF EUROPE

Norse Countries. — SWEDEN AND NORWAY. These two countries together occupy the Scandinavian peninsula, and are about as far north as southern Greenland (see map, Fig. 30). Were it not for the Gulf Stream, which flows past Norway, this, like Greenland, might be a barren, frozen country. As it is, however, many people live there.

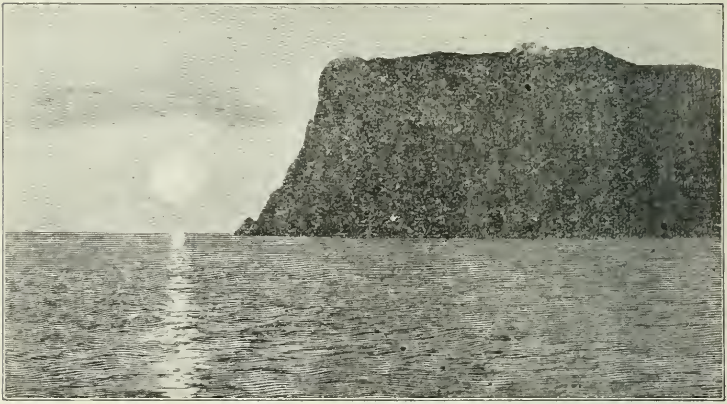


FIG. 186.

North Cape, the northern point in Norway. The summer sun is shining here at midnight, because the cape is within the Arctic circle.

HAMMERFEST is the most northerly town in the world, and being within the Arctic circle, the sun is visible all night long in the middle of summer. The northern part of Norway is therefore often called "the land of the midnight sun."

As in Scotland, most of the country is too hilly and rocky for farming, although some grain, cattle, and sheep are raised, especially on the lower land of southern Sweden along the Baltic. Few people live in the highlands, and about one-fourth of Norway is covered by forests, which supply timber and wood pulp for making paper. This is sent chiefly to Great Britain. In Sweden there are valuable iron and copper mines, and the Swedish iron and steel are famous.

The coast is very irregular, and many deep, narrow bays, or *fiords*, reach into the land, making fine harbors. As a result, Norwegians and Swedes are skilful sailors. In the early days these Northmen were the best sailors in the world, and they came to the American shores long before Columbus discovered America. Fishing for cod and herring is now one of their important industries.

The principal cities are STOCKHOLM and CHRISTIANIA. Find each on the map (Fig. 173). They are the capitals of Sweden and Norway, but the entire peninsula is ruled by one king, the government being a monarchy.

DENMARK, just south of Norway and Sweden, is inhabited by people similar to those in Scandinavia; in fact, these three are often called the *Norse* nations, or the nations of the Northmen.

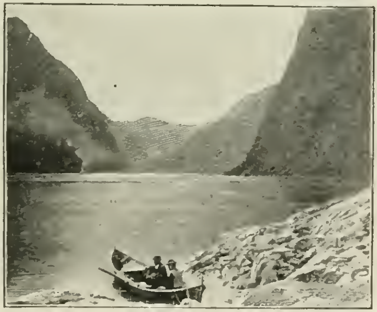


FIG. 187.

One of the deep, narrow fiords of Norway.

The Danes, also, have been great sailors, and now have possession of Iceland and the west coast of Greenland. Their country presents a very different appearance from Norway and Sweden, for the land is low and level, and farming is the occupation of about one-half the people. Large quantities of farm and dairy products are exported, chiefly to Great Britain. Fishing is also an important industry.

FIG. 188.
Danish women selling fish.

The government is a monarchy, the capital and largest city being COPENHAGEN, situated on one of the islands belonging to Denmark, between the mainland and Sweden.

Russia. — The Russian Empire not only includes great plains in Europe, but extends several thousand miles beyond the Ural Mountains to the eastern coast of Asia; it is nearly as large as the whole of North America and contains a greater number of inhabitants.

Most of Russia in Europe is a level country. The northern part, like northern Norway, is in the frigid zone, and so far away from the ocean that the climate is extremely cold. The plains there, called *tundras*, like the far northern part of Canada, are too cold for trees, and the frost never leaves the ground except at the very surface in summer. Nevertheless, a moss flourishes and supports numbers of reindeer, which are used as draft animals by the natives of Lapland, as the northern part of the country is called.

The south-eastern plains, called *steppes*, are so far from the ocean that the west winds can bring them little rain. They are therefore dry like the arid region east of the Rocky Mountains. But the central and southern parts are well suited to farming, and there most of the people live. Between the Baltic and the Black Seas in the south-west, one of their main crops is grain, especially wheat; and vast numbers of cattle and sheep roam over the broad, grassy steppes; in the north-west, flax and hemp are cultivated.

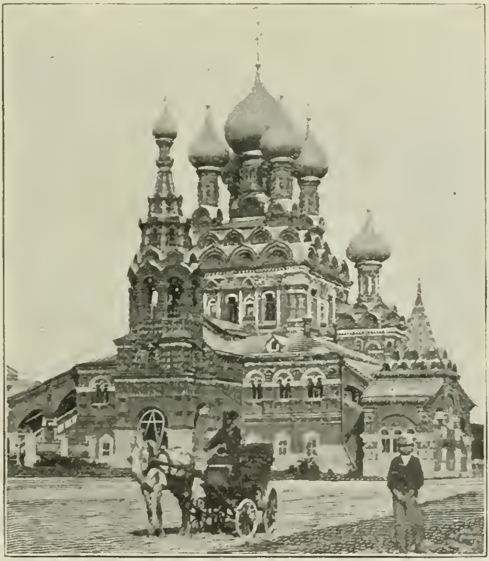


FIG. 189.

Greek Church at Moscow.

The Greek form of the Christian religion is the established church of Russia.

The rivers are excellent waterways, the largest of all being the Volga, the greatest river in Europe, famous for its sturgeon fisheries. What others do you find?

Since the Caspian Sea has no outlet, and the Arctic Ocean on the north side is frozen much of the time, the chief ports for foreign commerce must be either on the Baltic or the Black Sea. This explains the location of ST. PETERSBURG, the capital and largest city, which ranks fifth in size among the large cities of Europe. ODESSA, on the Black Sea, contains many flour-mills and is the most important port for the export of wheat.

The chief railway centre is MOSCOW in the interior, which is nearly as large as ST. PETERSBURG. WARSAW is another large city, formerly the capital of the ancient Kingdom of Poland. A great railway is being built (see map, Fig. 204) to connect St. Petersburg with VLADIVOSTOCK and PORT ARTHUR on the Pacific Ocean. This will be nearly twice as long as our Canadian Pacific Railway.

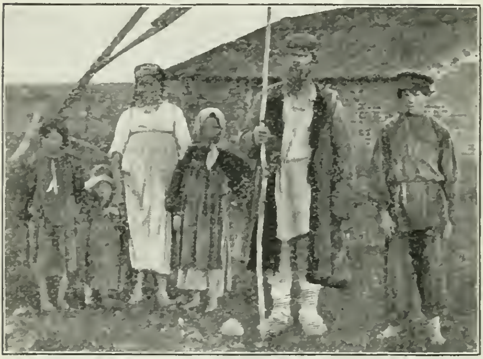


FIG. 190.
A family of Russian peasants.

The great mass of the people were formerly *serfs*, and were virtually slaves like the negroes of America. Although they received their freedom some time ago, they are not allowed to take any part in the government, and, unlike most of the European people, are kept in ignorance and subjection. The ruler of Russia is called the *Czar*, who makes and executes laws very much as he pleases. That kind of government is called an absolute monarchy, or despotism, and is very different from the limited monarchies thus far studied.

Germany. — The general slope of the land in Germany is shown by the rivers; in what direction do most of them flow? The southern part of the country consists of mountains and highlands, but the northern part is a great plain, a continuation of the plains of Russia.

As in Russia, there is much agriculture, one of the chief products being grain. Much of their bread is made from a grain called rye, and is so dark that it is called "black bread." Beets are grown in enormous quantities, and sugar is manufactured from them as it is from sugar-cane in the West Indies. Grapes flourish along the upper Rhine River, and from these wine is made; and more hops for making beer are raised in Germany than in any other country of the world.

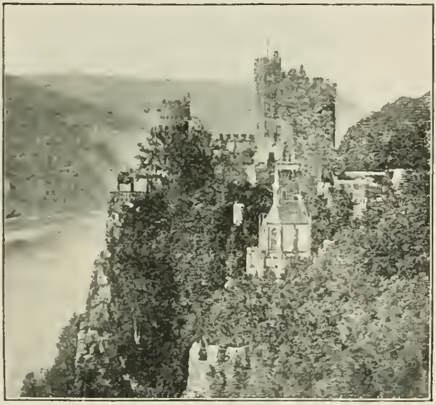


Fig. 191.
A castle on the Rhine.

Both coal and iron ore are mined in abundance; and many articles are manufactured, such as the famous Krupp guns and many kinds of machinery. Germany is noted also for its manufacture of cotton, woollen, and linen goods, ranking next to Britain as a manufacturing country of Europe.

The chief seaport is Hamburg on the Elbe River, a city about the same size as Liverpool. Why should the chief port be at this point rather than farther east on the Baltic Sea? A ship canal has recently been dug across the peninsula, from Kiel to the mouth of the river Elbe, south of Denmark. What are the advantages from it?

The schools, universities, and museums of Germany are among the best that exist, and are attended by many students from other countries for the purpose of studying music, painting, and other subjects. The largest university is in Berlin; Leipzig also has one, and there are many more. Munich and Dresden are noted for their fine picture galleries, and so is BERLIN, which also has several large museums. Find these cities on the map.

BERLIN, the capital of Germany, is the largest city.

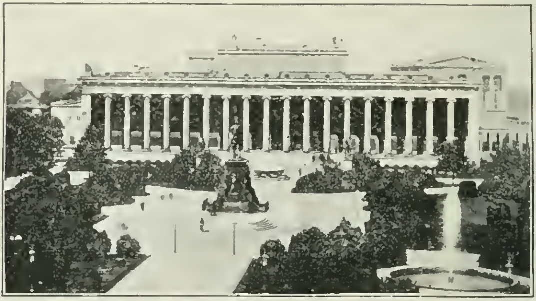


FIG. 192.
The Royal Museum at Berlin.

The government is a limited monarchy, and the present ruler is Emperor William II.

Holland, or the Netherlands (a word that means *lowlands*), is a low, flat country, much of it being lower than the neighboring sea.

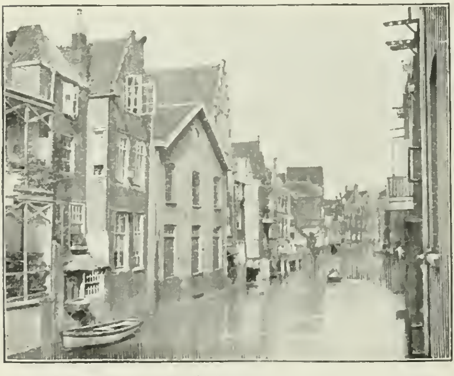


FIG. 193.
A canal in Holland.

The inhabitants have built embankments, called *dikes*, to keep the sea out, and have dug canals across the country to drain it. The water that collects inside the embankments is pumped out by windmills, or by steam, into the canals, and these canals form the chief roads;

being used in summer by boats and in winter by people on skates or on sleds.

The damp soil furnishes excellent grass, so that cattle raising and dairying are the principal occupations.

The Hollanders, or Dutchmen, living so near the sea, were at one time noted sailors and explorers, like the British. For this reason they came into possession of some of the richest islands in the East Indies, from which are obtained valuable products, such as coffee, spices, and precious stones. On the map, Figure 233, facing page 204, find the names of some of the Dutch East Indies. Find out about the early Dutch settlements in America. What great American city did they found?

The chief city is AMSTERDAM, which is more than twice the size of Montreal. The government is a monarchy, and the laws are made at THE HAGUE, on the coast.

Belgium, like Holland, has some land that is lower than the sea and protected by dikes; but the eastern part is much higher.

The people are crowded together more closely than in any other country of Europe. Many live on farms and raise much the same products as those of Holland and Germany. What are these?

Flax is an important farm product. It is a plant about two feet high, the fibre of which is used in making linen and fine laces. The Belgians have long been skilful in such work, and it was from them that the British received some of their knowledge about manufacturing. BRUSSELS, the largest city, is famous for its fine laces, linens,

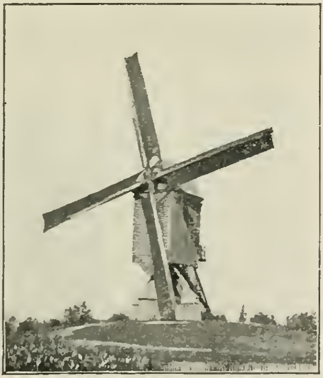


FIG. 194.
A windmill, in Belgium, like those so common in Holland.

and Brussels carpets, the latter being made of wool on a mat of linen.

There is a great amount of coal and iron in this little kingdom, so that the iron industry is extensive, as in Germany. LIÈGE is the centre of the iron manufactures.

The government is a monarchy with BRUSSELS for its capital. ANTWERP is the chief seaport.

France. — The slope of the land in France you may learn by the course of its rivers. What are their names? Where do they rise and in what direction do they flow?

In the cool northern part the crops are similar to those of Germany; but in the southern portion the climate is warmer and the crops somewhat different. Grapes are grown in great quantities, especially in the champagne country of the north-east and the region of BORDEAUX. These are made into wine that is sold in every part of the world. Much silk is also produced.

Silk is manufactured from cocoons spun by a caterpillar called the *silkworm*. Each one of the cocoons is made of a fine thread several thousand yards long, looking somewhat like the thread of a spider's web.

After the cocoons have been softened in hot water the threads are unwound and then wound upon spools. They are later made into thread and woven into silk cloth, ribbons, handkerchiefs, and other silk goods.

Much depends upon the proper care of the silkworm. Their principal food is the leaf of the mulberry tree, which is planted in great groves in the Rhone Valley, in Southern France. The leaves are plucked and the worms fed with them.

LYON, the centre for the silk industry, and the greatest silk market in the world, is next to the largest city in France.

PARIS, the largest city in France, is the third in size in the world, and one of the most beautiful. Like several cities in Germany, it has fine picture galleries and museums, and many foreigners go there to study painting, music, and other subjects. It is situated upon the Seine River, and its chief port is HAVRE, at the mouth of the Seine. From ST. MALO, a small port between Havre and Brest, Jacques Cartier started on the voyage which led to the discovery of Canada.

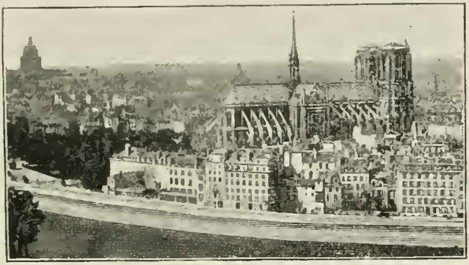


FIG. 195.
A view of the great city of Paris.

BORDEAUX, already mentioned, is an important shipping port for wine, and MARSEILLE the principal port upon the Mediterranean coast. From these three harbors France ships goods to and from her several colonies and other countries. TOULON, on the Mediterranean, and BREST, on the north-west coast, are the most important naval stations.

FIG. 196.
The harbor of Marseille.

The French government was formerly a monarchy, but is now a republic with PARIS as its capital. The island of CORSICA in the Mediterranean belongs to France.

Spain and Portugal. — The Pyrenees Mountains form the boundary between France and Spain, rising like a great wall to separate the two countries.

You may remember that Magellan was a Portuguese and that it was to Spain that Columbus went for help. These were once among the most powerful nations in the world, and they ruled much of North America and most of South America. Little by little they have lost their colonies in the New World, the last to be taken being Cuba and Porto Rico.

Like Mexico, which was settled and for a long time owned by the Spaniards, Spain has a dry, mountainous plateau or table-land in the interior, with low land along the coast.

Being so much like a desert, one would expect few people to make their homes in the interior; and this is the case, although, strange to say, the greatest city, MADRID, is found in the centre of this table-land. Its importance is due to the fact that it is the capital of Spain.

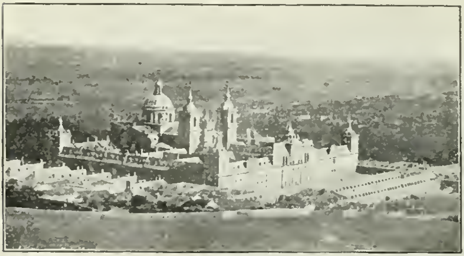


FIG. 197.
A view of a part of Madrid and the great plateau on which it is situated.

As upon the dry Western plains and plateaux of our continent, cattle and sheep raising are important industries on this highland. But the rocks of this region contain its chief wealth, for Spain produces more quicksilver and lead than any other nation, and more copper and iron than most others.

There is considerable farming in the mountain valleys and on the low lands along the coast. One of the most valuable crops is grapes; you have doubtless seen Malaga grapes, named from the city of MALAGA on the southern coast. Many grapes are made into wine; others are dried to make raisins, which are shipped chiefly from VALENCIA. Other fruits grown there are olives, lemons, oranges, and figs; besides these, much cork is obtained from the bark of the cork-oak.

BARCELONA, on the eastern side, is the chief port of Spain. From Palos near CADIZ, Columbus started to discover America. The principal city of Portugal is LISBON, the capital; port wine is shipped from OPORTO.

The BALEARIC ISLANDS in the Mediterranean and the CANARY ISLANDS off the coast of Africa belong to Spain. The AZORES, west of the Strait of Gibraltar, and the CAPE VERDE and MADEIRA Islands off the coast of Africa, belong to Portugal.

Both governments are limited monarchies, like those of most European countries.

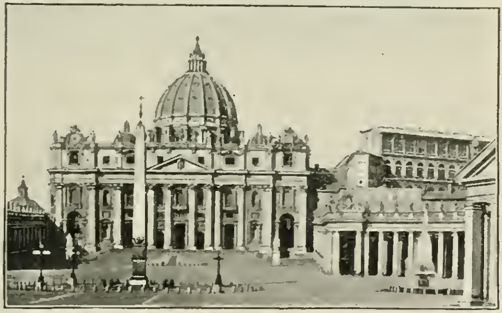


FIG. 198.

St. Peter's Cathedral on the left, and the Vatican, the residence of the Pope, on the right.

Italy was once the most powerful country in the world. Its principal city was ROME, and the Romans ruled nearly all the other countries then known. But, like Spain, it has lost much of its importance.

ROME is still the capital and the residence of the king: also of the Pope, who is the head of the Roman Catholic Church. The city is especially noted for its many ruins of buildings erected hundreds of years ago.

VENICE, at the head of the Adriatic Sea, is another interesting city. It is built upon many islands joined by hundreds of bridges, and its chief streets are canals, where boats called *gondolas* are used in place of waggons and carriages.

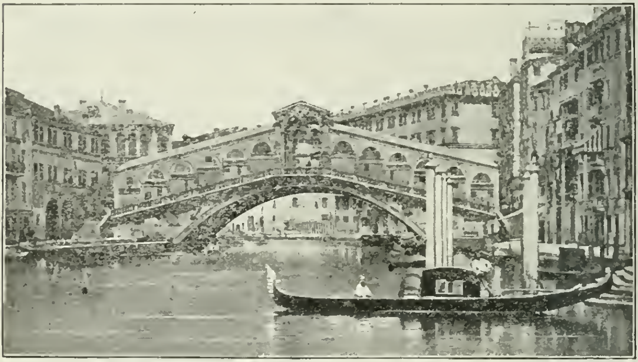


FIG. 199.

One of the canals of Venice with a gondola floating upon it.

NAPLES, which is on the coast south-east of Rome, and near Mt. Vesuvius, is the largest city in Italy. The steam rising from the crater of Vesuvius is easily seen from the city (Fig. 11). Volcanic ash from Mt. Vesuvius has entirely buried some of the towns near by, such as the ancient city of Pompeii, from which the ashes have been dug away so as to bring to light the buried buildings and streets.

The best farm land is in the valley of the Po River in the northern part, where wheat and other grains, and mulberry trees for silkworms, are raised. MILAN, like Lyon in France, is a great centre for silk. The large islands of SARDINIA and SICILY belong to Italy.

The climate is mild enough to produce the same fruits that are grown in Florida and Southern California. Name some of them.

Switzerland. — Any one who has heard the story of William Tell, or who has read about the St. Bernard dogs kept by the monks, has some idea of how Switzerland looks. Here are the snow-capped Alps, with many lakes and fertile valleys between them, and views so beautiful that thousands of people go every year to enjoy them (Our Home, p. 20). One of the occupations of the Swiss is to provide for these visitors, and the Swiss mountaineers are famous all over the world.

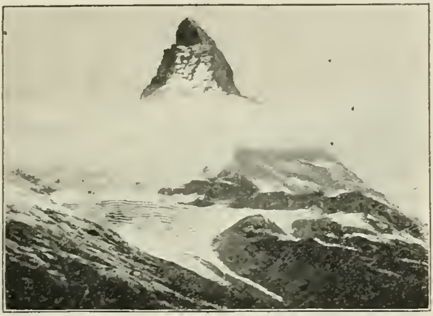


FIG. 200.

The snow-capped Matterhorn, one of the Alpine peaks.

The green grass in the low-lying valleys and on the mountain sides provides excellent food for cattle and goats, so that butter and cheese are made, as in Holland. Probably you have heard of Swiss and Dutch cheese.

Watch-making and wood-carving are also important industries. During the long winters the wood grown upon the mountains is carved into toys, clocks, and many other articles. Have you ever seen a Swiss clock?

Name the countries on each side of Switzerland, and notice that it is surrounded by people who speak German, French, and Italian. In consequence, instead of having one language of their own, the Swiss have these three, those living in each part speaking the language of the foreign country nearest to them.

The Swiss government has long been a republic, like that of the United States, and BERNE is the capital. Find on the map (Fig. 173) the chief cities, ZÜRICH, GENEVA, and BASEL.

Austria-Hungary.— Austria and Hungary are united under one monarchy, although they have different customs and languages. Many of the Austrians are closely related to the Germans; but the Hungarians are a very different race. The capital and largest city is VIENNA, the fourth in size in Europe. It is situated on the Danube River, the great central water highway, so that it has water connection with many other places.

FIG. 201.
A view on the Danube in Austria.

BUDAPEST, the capital of Hungary, is next to Vienna in importance. It is in the midst of a great wheat region, and is a flour-milling centre. The cultivation of flax leads to another manufacturing industry. What is it?

Which parts of Austria-Hungary are mountainous? Much coal and iron are found in the north-western part near Germany, and PRAGUE is noted for the manufacture of hardware. The chief harbor is on the Adriatic coast; what is its name?

Greece. — The country in Europe which has perhaps had the greatest influence upon the rest of the world is Greece. The Romans received many of their beliefs and customs from the Greeks; and since many of ours come from the Romans, we also are greatly in debt to the Greeks.

The centre of this influence was ATHENS, once the most famous city in the world. Many years later, at the time of Christ, it was still an important place. Both Athens and Corinth, near by, are mentioned in the Bible.

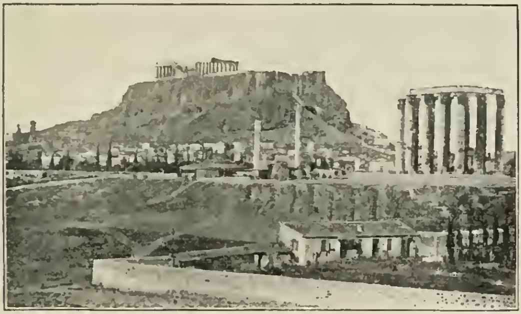


FIG. 292.

The Acropolis with its ruins on top, and the ruins of the Temple of Jupiter on the right, both in ancient Athens.

The country is mountainous, producing currants, or dried Corinth grapes, and other fruits, and much grass for grazing. But there is little mining and manufacturing.

At one time the Greeks were conquered by the Turks and very cruelly treated by them; but they obtained their independence, and their government is now a monarchy with ATHENS for its capital.

Turkey. — The largest city in south-eastern Europe is CONSTANTINOPLE, which, in appearance, is more Asiatic than European. Notice what an excellent location it has. It is the capital of Turkey, which, like Russia, is a country partly in Europe and partly in Asia.

The Turkish government is the worst in Europe. The ruler, called the *Sultan*, is an absolute despot, who governs his people so badly that they are kept extremely ignorant and poor. In all the other nations of Europe the Christian religion, either Protestant or Catholic, is followed; but the Turks are Mohammedans, followers of Mohammed, like many other people in Asia and Africa. They are religious fanatics, and dislike Christians very much (see p. 180).

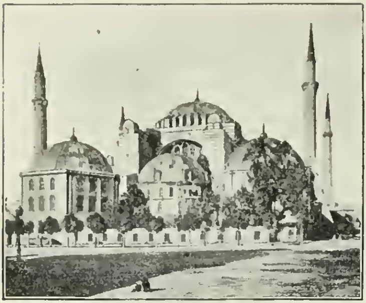
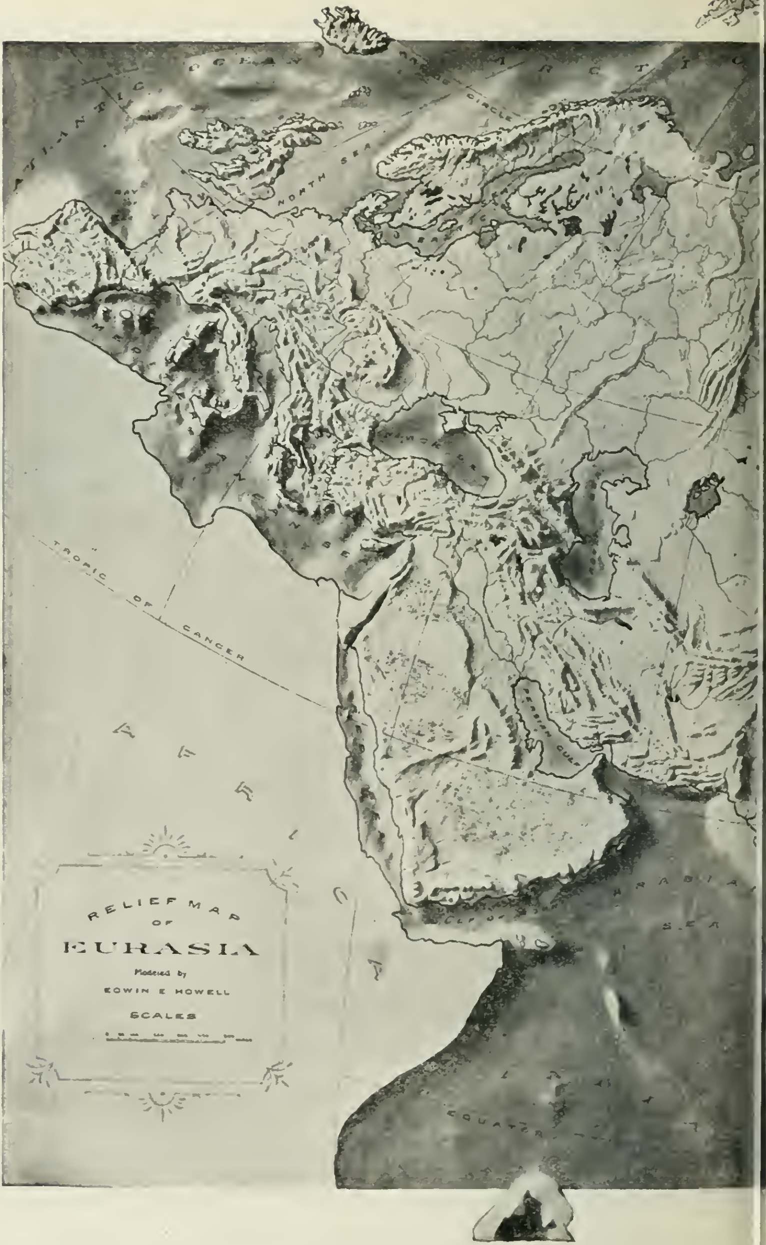


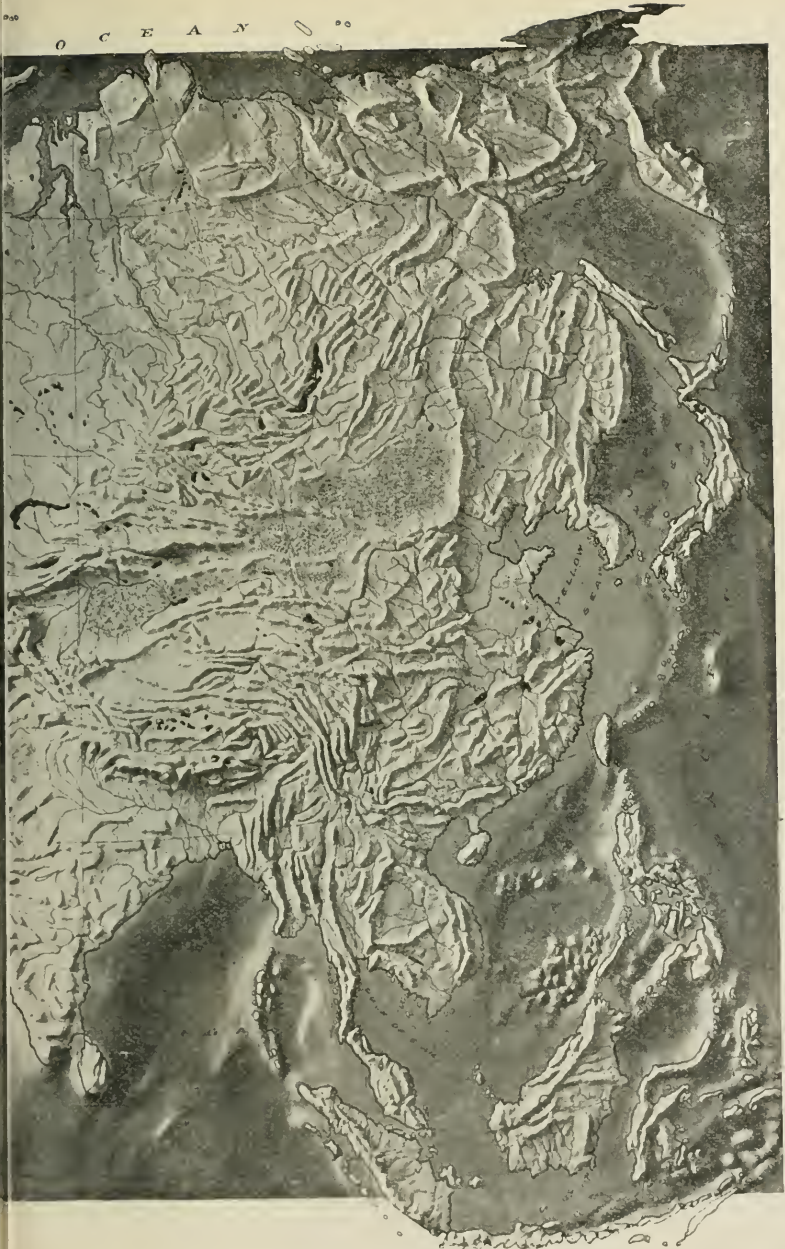
FIG. 203.
A mosque, or Mohammedan church, in Constantinople.

One proof that the Turkish government is bad is the fact that the people in many parts of the Empire have rebelled against it and fought for their freedom. For example, Roumania, east of Austria, used to belong to Turkey, but it is now an independent kingdom. The same is true of Bulgaria, Servia, and Montenegro; Greece has already been mentioned.

The large island of CRETE, at the entrance to the Ægean Sea, belongs to Turkey, but is under the government of a high commissioner appointed by the Great Powers of Europe.

The people in all these countries are largely engaged in farming and herding, the Danube Valley being especially fertile. Grain, wine, raisins, and wool are important products.


ATLANTIC OCEAN
ARCTIC
ARCTIC CIRCLE
NORTH SEA
MEDITERRANEAN SEA
BLACK SEA
PERSIAN GULF
TROPIC OF CANCER
AFRICA
ARABIAN SEA
GULF OF ADEN
EQUATOR
RELIEF MAP OF EURASIA
Modeled by
EDWIN E HOWELL
SCALES


OCEAN
YELLOW SEA

XXVI. ASIA

Map Questions. — (1) Through what zones does Asia extend? (2) What climate would you expect to find there? (3) Where are the highest mountains and plateaux? (4) What rivers have their sources in that region? (5) What large inland seas do you find? (6) What three large peninsulas on the southern side? (7) What three were found on the south side of Europe? (8) How does Asia compare in size with Europe? (9) Find Asia on a globe. (10) How could you reach it from Canada, if you wished to go there?

Physical Geography. — Like Europe, the coast of Asia is very irregular, with many peninsulas and islands. Draw an outline map of it, showing these with the larger bays and seas enclosed by them.

Fig. 205.
The snowy range of the lofty Himalayas.

Note the direction in which the many mountain ranges extend. The loftiest among them, and in fact the highest in the world, are the Himalaya Mountains (Fig. 205), the highest peak, Mount Everest, being over twenty-nine thousand feet, or about five and one-half miles, above the sea. Where is it? How does it compare in height with Mt. Blanc? (See p. 246.)

North of the Himalayas are lofty plateaux, one of them, the plateau of Tibet, being about three miles in height. How does that compare with the Spanish plateau (see p. 248) and with the western Rocky Mountain plateau in the United States (see p. 248)? It is so high that the winter climate is very cold; and since the winds from the ocean have lost their moisture in passing over the mountains, these plateaux are also dry. Farther north it is drier still, and we find there the great desert of Gobi,

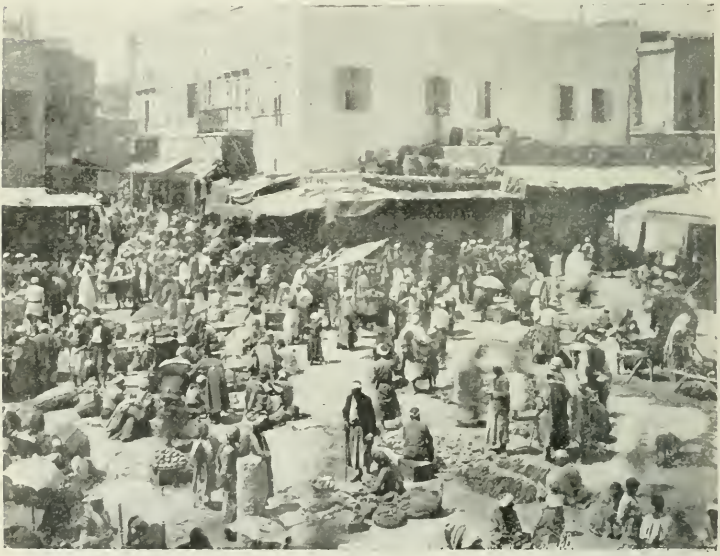
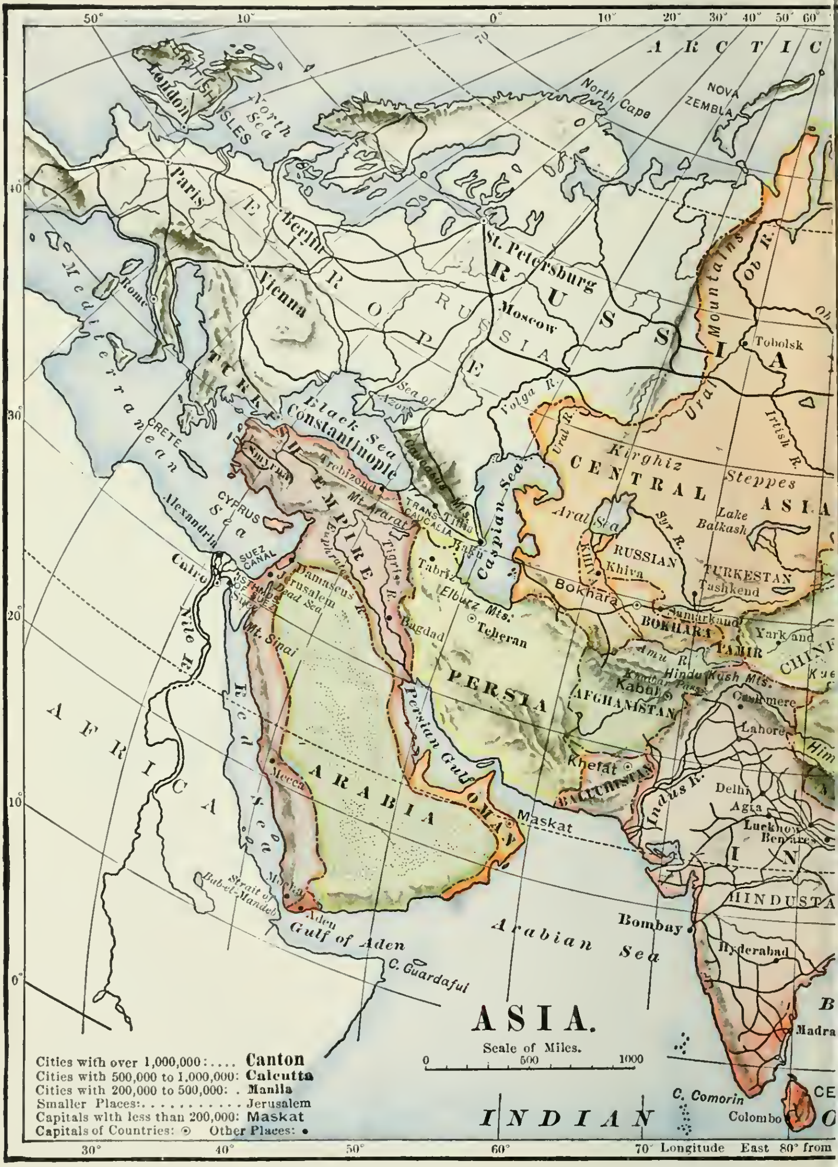


FIG. 206.
The market-place at Jaffa (the ancient Joppa). From here a railway runs to Jerusalem.


ASIA.
Scale of Miles.
0
500
1000
Cities with over 1,000,000: . . . . Canton
Cities with 500,000 to 1,000,000: Calcutta
Cities with 200,000 to 500,000: . Manila
Smaller Places: . . . . Jerusalem
Capitals with less than 200,000: Maskat
Capitals of Countries: ⊙ Other Places: •
30°
40°
50°
60°
70° Longitude East 80° from
50°
10°
0°
10°
20°
30°
40°
50°
60°
70
40
30
20
10
0°
ARCTIC
NOVA ZEMBLA
North Cape
BRITISH ISLES
London
North Sea
Paris
Berlin
EUROPE
Vienna
Rome
Mediterranean Sea
St. Petersburg
RUSSIA
Moscow
RUSSIA
Sea of Azov
Volga R.
Ural R.
Ural Mountains
Ob R.
Tobolsk
Irtish R.
TURKEY
TURKISH EMPIRE
Black Sea
Constantinople
Smyrna
Trebizond
Mt. Ararat
Caucasus Mts.
TRANS CAUCASIA
Tiflis
Baku
Caspian Sea
CRETE
CYPRUS
Alexandria
Cairo
SUEZ CANAL
Damascus
Jerusalem
Dead Sea
Euphrates R.
Tigris R.
Bagdad
Tabriz
Elburz Mts.
Teheran
PERSIA
Kirghiz Steppes
CENTRAL ASIA
Aral Sea
Lake Balkash
Syr R.
RUSSIAN TURKESTAN
Khiva
Tashkend
Bokhara
BOKHARA
Samarkand
Yarkand
PAMIR
CHINESE
Amu R.
Hindu Kush Mts.
Khaibar Pass
Kabul
AFGHANISTAN
Cashmere
Lahore
Him
Khelat
BALUCHISTAN
Indus R.
Delhi
Agra
Lucknow
Benares
INDIA
HINDUSTAN
Bombay
Hyderabad
Madras
C. Comorin
CEYLON
Colombo
Nile R.
AFRICA
Mt. Sinai
Red Sea
Mecca
ARABIA
Persian Gulf
OMAN
Maskat
Mocha
Strait of Bab-el-Mandeb
Aden
Gulf of Aden
C. Guardafui
Arabian Sea
INDIAN OCEAN
B

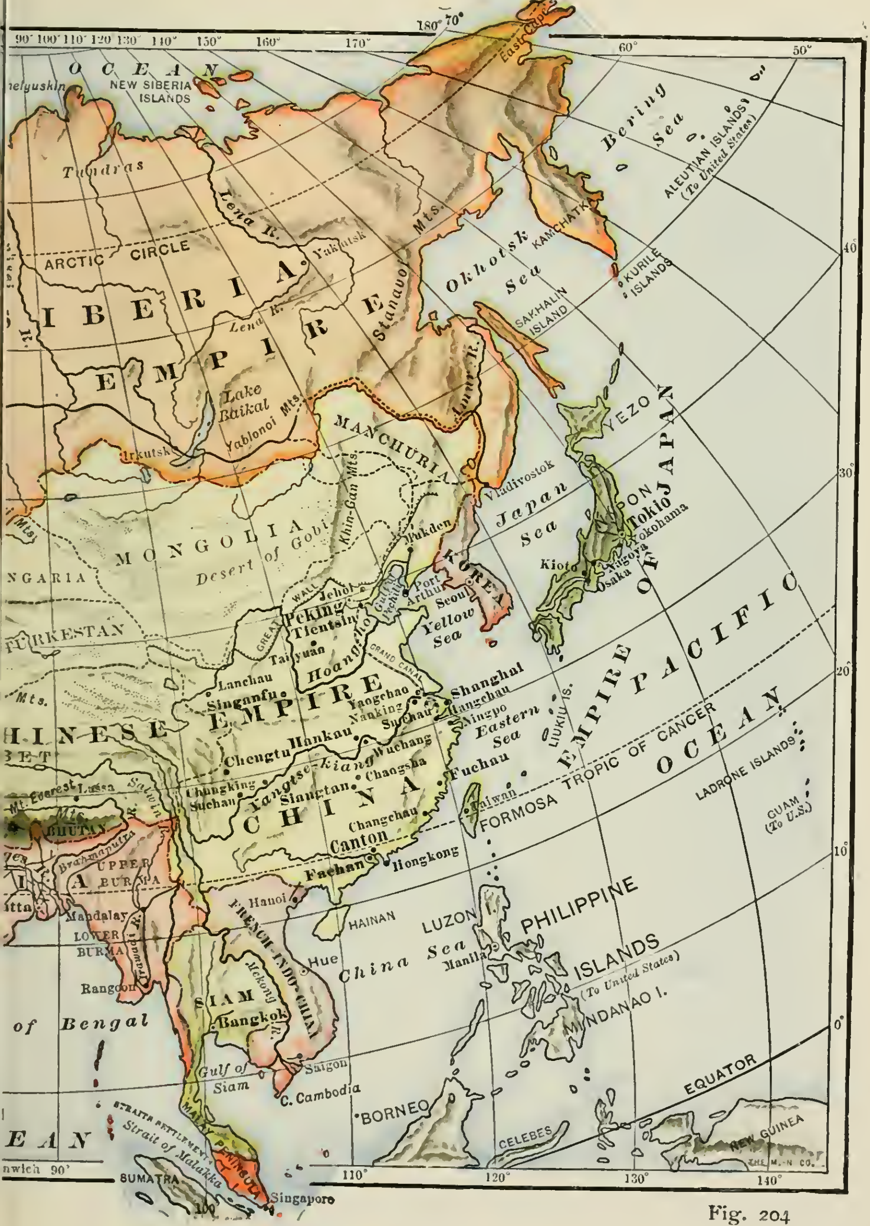

OCEAN
NEW SIBERIA ISLANDS
Tundras
Lena R.
Yakutsk
ARCTIC CIRCLE
SIBERIA
EMPIRE
Lena R.
Stanavoi Mts.
Okhotsk Sea
KAMCHATKA
Bering Sea
ALEUTIAN ISLANDS (To United States)
KURILE ISLANDS
SAKHALIN ISLAND
East Cape
Lake Baikal
Yablonoi Mts.
Irkutsk
Amur R.
MANCHURIA
Khin-Gan Mts.
Vladivostok
YEZO
JAPAN
NIPPON
Tokio
Yokohama
Nagoya
Kioto
Osaka
EMPIRE OF JAPAN
Japan Sea
MONGOLIA
Desert of Gobi
Mukden
KOREA
Seoul
Port Arthur
Gulf of Pechili
Yellow Sea
NGARIA
TURKESTAN
GREAT WALL
Jehol
Peking
Tientsin
Taiyuan
Hoang-ho
GRAND CANAL
Lanchau
Singanfu
Yaogchao
Nanking
Suchau
Shanghai
Hangchau
Ningpo
Eastern Sea
CHINESE EMPIRE
Hankau
Wuchang
Chengtu
Yangtse-Kiang
Changsha
Chungking
Suchau
Siangtan
Fuchau
LIUKIU IS.
PACIFIC OCEAN
TROPIC OF CANCER
LADRONE ISLANDS
GUAM (To U.S.)
Mt. Everest
Lassa
Salwin R.
BHUTAN
Brahmaputra R.
UPPER BURMA
CHINA
Changchau
Canton
Fachan
Hongkong
Taiwan
FORMOSA
Hanoi
HAINAN
FRENCH INDO-CHINA
Mandalay
LOWER BURMA
Irawadi R.
Hue
LUZON I.
PHILIPPINE ISLANDS (To United States)
China Sea
Manila
Rangoon
SIAM
Mekong R.
Bangkok
MINDANAO I.
Bay of Bengal
Gulf of Siam
Saigon
C. Cambodia
BORNEO
CELEBES
EQUATOR
NEW GUINEA
OCEAN
STRAITS SETTLEMENTS
Strait of Malakka
MALAY PENINSULA
SUMATRA
Singapore
Greenwich 90°
90° 100° 110° 120° 130° 140° 150° 160° 170° 180° 70°
60° 50° 40° 30° 20° 10° 0°
110° 120° 130° 140°
THE M.-N. CO.

Fig. 204

These mountains and plateaux form the watershed of the continent. Find three great rivers that flow northward from the watershed through the vast plain of Siberia. Name three that flow eastward into the Pacific Ocean. What others flow southward?

The south-western portion of Asia is mainly a desert, because the winds blowing over it come from the land instead of from the sea, and therefore have little vapor.

From what has been said about the climate it is plain that the inhabitants of this continent must be found chiefly in the eastern and southern parts. There they live in vast numbers along the coast and by the large rivers; in fact, nearly one-half of all the people in the world are found in these regions.

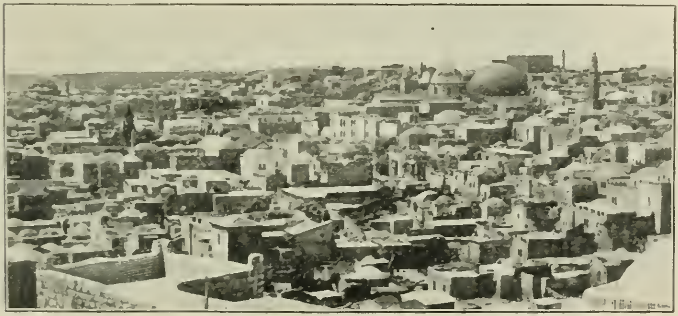


Fig. 207.

A picture of a part of Jerusalem.

South-western Asia. — Rome and Athens have been mentioned as cities that have had a great influence upon other countries. But the part of the world which has probably had the greatest influence of all is that at the eastern end of the Mediterranean Sea. Here is the land that used to be called Palestine, the home of the Jews; and here is still the city of JERUSALEM (Fig. 207), near which Christ was born about nineteen hundred years ago, and in which He was crucified. The Christian churches and Christmas are in His memory. The home of Christ, where the Christian religion was founded, is now a part of the Turkish empire which extends into Asia.

Turkey extends down the western coast of the Arabian peninsula, and includes another famous city, called MECCA. The Turks are not Christians but Mohammedans, or followers of Mohammed, who was born at Mecca nearly fourteen hundred years ago. The Mohammedans believe in God, and their holy book is called the Koran. A great many other people in Asia and northern Africa are followers of Mohammed.

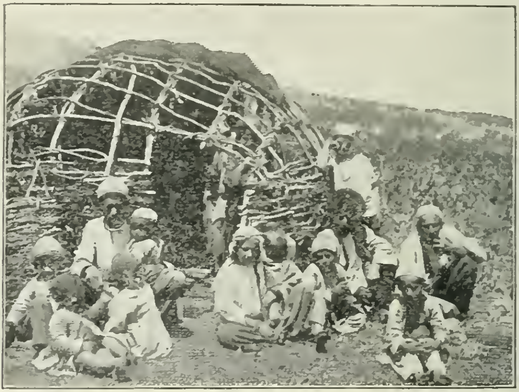


FIG. 208.

The home of a group of Persian nomads.

The western part of Asia, including Turkey, Arabia, and Persia, has a very dry, arid climate. This is particularly true of Arabia, which is mainly a desert plateau much more arid than Spain.

In this desert country agriculture is not a very important industry; but dates and coffee are raised there, especially near the rivers and along the coast. You have perhaps heard of MOCHA coffee, and if you look on the map you can find the place from which it gets its name.

Although so much of this region is desert, there are places, called *oases*, where water is found. As these are usually too small to furnish water and grass for large herds during a long time, the Arabs are forced to wander from place to place, having no fixed homes. On that account they are called *nomads* or wanderers (Fig. 208). They take special pride in raising horses, which have become famous throughout the world. They also keep cattle, sheep, goats, and camels.

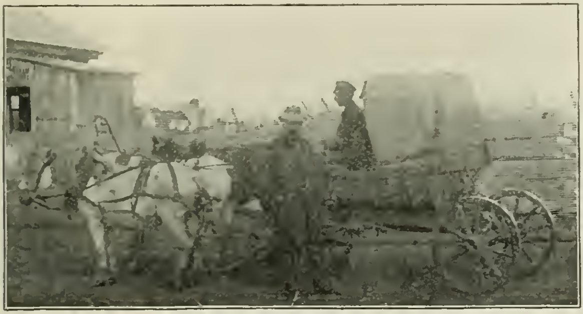


FIG. 209.
A Siberian three-horse waggon.

Much of Persia is also a desert; but some parts are well suited for grazing, and the climate is warm enough for such fruits as figs and dates. What is the capital? The ruler of the Persians is a despot called the *Shah*.

The people of these countries are not civilized enough to carry on much manufacturing, although beautiful carpets, rugs, and shawls are made in great numbers, especially in Persia and Turkey. This work is done by hand, and though it is well done, it requires a great deal of time, while in our great factories carpets are quickly made by machinery. Railways are almost unknown, and even carriage roads are usually lacking. Goods are carried upon camels in groups, called *caravans* (Our Home, Fig. 69, p. 72), and men travel upon the backs of horses and camels.

Siberia. — Siberia belongs to Russia. It is a region of extensive plains and is much larger than the whole of Russia in Europe. Like the northern regions of the Dominion much of it is so cold that few people can live there, and it has been made a prison for many Russians who have committed crimes, or who have offended their despotic rulers.

A large portion of south-western Siberia is a desert having numerous lakes without outlets. Would you expect them to be salt or fresh? Between this arid section and the bleak northern plains, or tundras, which resemble those of northern Europe, is a region where there are extensive forests, and broad plains suited for grazing and farming.

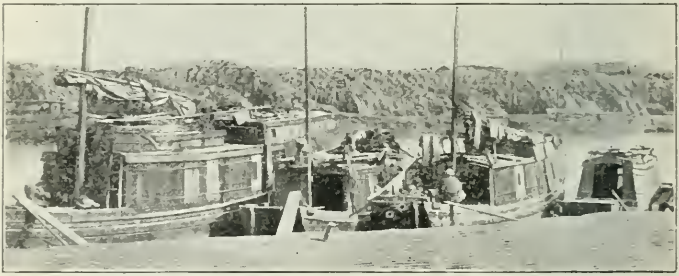


FIG. 210.
Houseboats on the Tientsin River of China.

One of the chief sources of wealth of Siberia is in the gold mines of the Ural Mountains. Graphite, from which the "lead" in lead pencils is made, is also found there. Many of the prisoners from Russia are compelled to work in these mines.

Near Baku, on the Caspian Sea, petroleum is found in large quantities, similar to the oil from the wells of Ontario and the United States.

The Russian government has built a great railway all the way from St. Petersburg eastward to VLADIVOSTOK and to PORT ARTHUR in China on the Pacific coast. How far is that?

The Chinese Empire and Korea. — Some of the most important arts that we have ever learned first came from the Chinese. For instance, they made porcelain dishes long before Europeans knew how to do so, and on that account those dishes are still called *china-ware*, even though manufactured in other countries. They invented gunpowder, and our fire-crackers for the Queen's birthday used to come from China. They also discovered how to make silk and paper, and they invented the art of printing.

Fig. 211.
Temple in Peking.

But while this strange-looking, yellow race was once among the foremost nations of the earth, it is now very much behind. This is explained partly by the fact that their religion causes them to worship their ancestors, so that whatever their fathers did, they must do. Since their fathers had no railways, telegraphs, or telephones, none are wanted now. Owing to their fear of new things, few of them have travelled abroad, nor have they allowed foreigners to visit them.

But recently many Chinese have come to this country and to the United States, working as servants, especially on the Pacific coast, and as laundrymen in all parts of the country. Besides that, they now allow foreigners to live in some of their coast cities and trade with the people.

CANTON, in the southern part, larger than any city on this continent, except greater New York, and SHANGHAI, a city twice the size of Montreal, are the principal ports for foreign trade. HONGKONG, an island at the mouth of the

Chu-Kiang, near Canton, belongs to Great Britain. The principal town is VICTORIA. The steamships from Vancouver call here.

Much of the northern and western portions of the Chinese Empire are so high and dry that few persons can live there. Find the names of those parts. But the lower plains near the coast, especially the fertile flood plains and deltas of the great rivers, support a vast population, because the soil is fertile, and abundant rainfall is supplied by the damp winds from the Pacific. Here live nearly one-fourth of all the inhabitants of the globe, crowded together so closely that many thousands dwell in boats on the rivers.

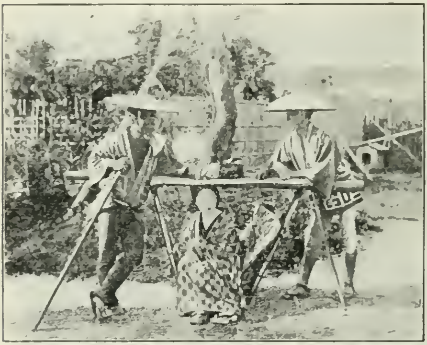


FIG. 212.
A Japanese woman being carried in a travelling chair by two Japanese men.

In the northern part a great deal of wheat is raised; but farther south, rice, millet, tea, and silk are important products. China produces more raw silk than any other country in the world. What other regions are noted for these same products?

The government is an absolute monarchy, with the capital at PEKING, which, like TIENTSIN, its seaport, is more than three times as large as Montreal. The government is so weak and corrupt that European nations are able to seize and hold parts of the country, so that the once great empire is in danger of being destroyed and the different parts made subject to various European nations.

KOREA is also a very unprogressive nation, similar in manners and customs to China, which, until recently, would not permit foreigners to enter their land.

Japan. — The Japanese live upon islands east of Asia, as the British do west of Europe. Their territory is but slightly larger than the British Isles, and the inhabitants are not much more numerous. The islands are numerous but mostly small. There are five large ones, the southernmost being Formosa. They are really the crest of a mountain range rising above the sea, and some of the mountain peaks are volcanoes.

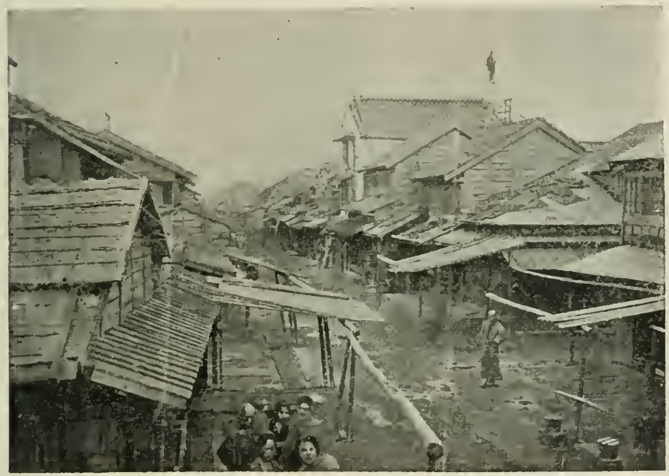


FIG. 213.
Scene in a Japanese village.

The Japanese used to be much like their neighbors, the Chinese; that is, they believed in ancestor worship, and wanted to have nothing to do with foreigners. But, since 1858, when a revolution occurred, Japan has shown a most remarkable power of adopting western knowledge and experience. Very soon after that event the Japanese not only allowed foreigners to enter their country, but invited them to come as teachers, and even sent some of their own young men abroad to study.

By treaties with Great Britain, the United States, and other countries, many ports are now open to foreign trade, and the Canadian Pacific steamships from Vancouver call at Yokohama and other ports on their way to Shanghai and Hongkong in China.

The result is that Japan is now far in advance of China, and in fact of all other parts of Asia. Railways, telephones, and newspapers are common, and there are many good schools, while rapid progress has been made in manufacturing.

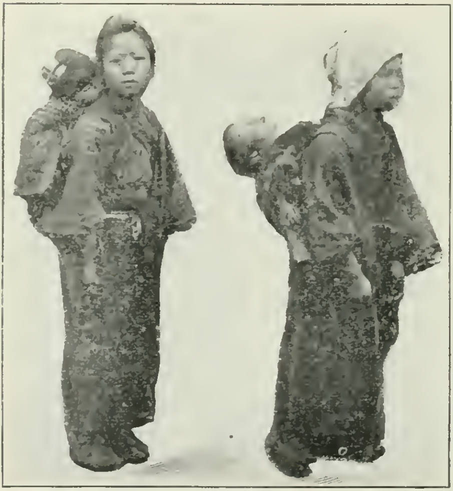


FIG. 214.

The way Japanese babies are carried by the young girls. The baby leaning back is asleep.

That the Japanese are very skilful in many kinds of handiwork is suggested by the Japanese fans, parasols, napkins, dolls, and screens so often seen in this country. Whatever they make they try to make beautiful, being one of the most artistic races in the world.

Japan, like China, produces large quantities of silk, rice, and tea. There is also considerable mining.

The principal city and capital is TOKIO, which is twice as large as Liverpool in England, and is the home of the emperor, called the *Mikado*. Its seaport is YOKOHAMA, a city as large as Toronto.

XXVII. INDIA AND INDO-CHINA

INDIA, the central one of the three peninsulas on the southern side of Asia, is the country that Columbus thought he had reached when he discovered America. Hence the name "Indians" for the savages whom he met.

The greater part of this vast country, including India and Burma, is now under the influence and government of Great Britain. From it our late Queen Victoria received the title of "Empress of India," and our present king is "Emperor of India" as well as "King of Great Britain and Ireland and of the British dominions beyond the seas." It contains a population three times as great as the whole continent of North America, and next to China is the most populous country in the world.

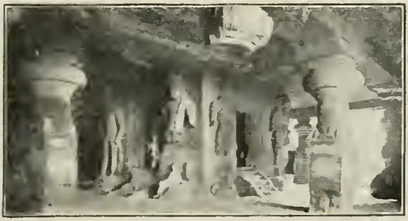


FIG. 215.

Idols in a cave near Bombay.

Great ranges of mountains separate the peninsula from the rest of Asia. What are their names? These can only be traversed by two or three passes, the most noted of which is the KHAIBAR PASS, on the north-west. South of the fertile plains, or valley of the Ganges, the country forms a low table-land, bordered by the eastern and western Ghats (an Indian word meaning "stairs").

The damp winds from the Indian Ocean, called "monsoons," furnish the plains and mountains of India with so much rain that in places the forests form a perfect tangle or *jungle* of luxuriant vegetation, in which live tigers, elephants, and many other wild animals. Have you ever read Rudyard Kipling's "Jungle Book," which tells of this region? Should these winds fail during the season, the country is liable to fearful drought and famine.

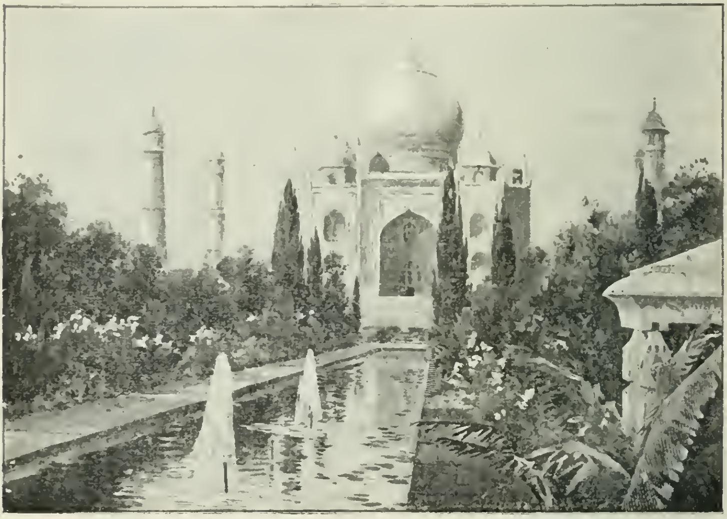


FIG. 216.

The Taj-Mahal at Agra.

Several very large rivers rise in the Himalayas and flow across the plains. One is the Indus, from which the words India and Hindustan come, and also the word Hindus, as the inhabitants are sometimes called. The river flowing south-east is the sacred river of the Hindus, the Ganges, on which is BENARES, the holy city of the Hindus, and CALCUTTA, the capital and largest city of India. What other great river joins the Ganges near its mouth? The next city in size on the eastern coast is MADRAS, far to the south, while the largest city on the west side is BOMBAY, which has the best harbor of all.

The government is administered by a Viceroy and council, whose residence is at Calcutta. A large army is maintained, composed largely of native troops, with British officers. These native soldiers are called "Sepoys."

The Hindus are great architects and have built many wonderful palaces and temples: one of the most beautiful is the Taj-Mahal (Fig. 216) at Agra, the mausoleum, or tomb, of the Great Mogul (the title of the former great native ruler in India). Under British influence great progress has been made in the country, — roads, railways, and irrigation works have been built, and manufactures established. One great railway extends from Bombay to Calcutta. How far is that?

One advantage to Great Britain, in the possession of India, consists in the important products of the country. Cotton, one of the principal, is shipped to Britain to be made into cloth, and then some of this cloth is shipped back to India and sold there. Where else have we found a similar situation?

Rice is the most important product of India and forms the largest item of export. It is also the staple food of the people.

Wheat is another great product, and since Britain does not produce enough of that food for home use, much has to be imported from abroad, and India supplies the largest amount next to the United States. Other crops are poppies, from which opium is made, silk, jute, tea, coffee, millet, and indigo.

The peninsula east of India, called Indo-China, and the East Indian Islands south of it, are other places that Columbus wished to reach. Here are found precious stones, pepper, such spices as nutmeg and cinnamon, and other valuable products, which were carried by caravans to Europe long before the time of Columbus. Many of these products are now shipped from SINGAPORE, a strongly fortified city belonging to Britain. It is situated on an island at the southern end of the Malay peninsula, and is one of the most busy seaports in the world. The greatest city in Indo-China is BANGKOK, the capital of the kingdom of Siam. MANDALAY is the capital of Burma, and RANGOON the seaport, from which much rice is exported. BURMA and the STRAITS SETTLEMENTS belong to Great Britain.

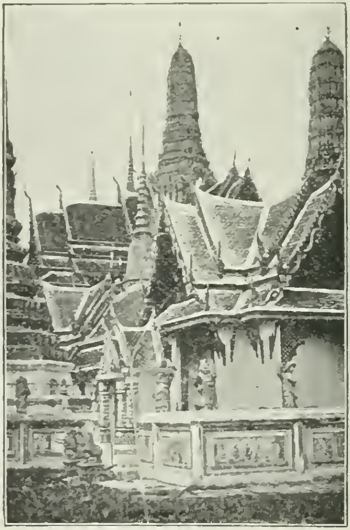


FIG. 217.

A view in the palace grounds at Bangkok, Siam.

East of Siam is French Indo-China, a province belonging to France, of which SAIGON is the capital.

Ceylon. — South-east of India is the Island of Ceylon, the "Garden of India," almost joined to the mainland by a coral reef and rocky islands, called "Adam's Bridge." It is a colony of Great Britain, and is famous for its lovely scenery, its precious stones, and tropical products. It exports great quantities of tea, coffee, quinine, cinnamon, and other spices. COLOMBO, a city one-half the size of Montreal, is the capital.

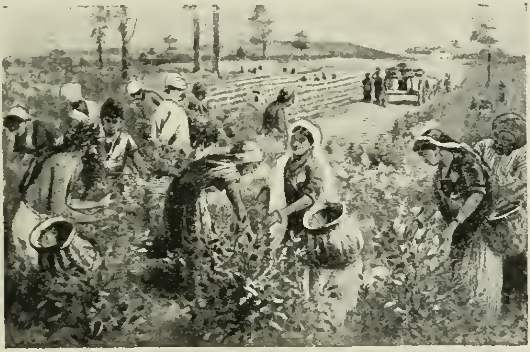


FIG. 218.

Picking tea in the Island of Ceylon.

Steamships come from Britain to Bombay, to Colombo, and to other Indian ports through the Suez Canal. Trace their course on the map, Figure 204.

XXVIII. AFRICA

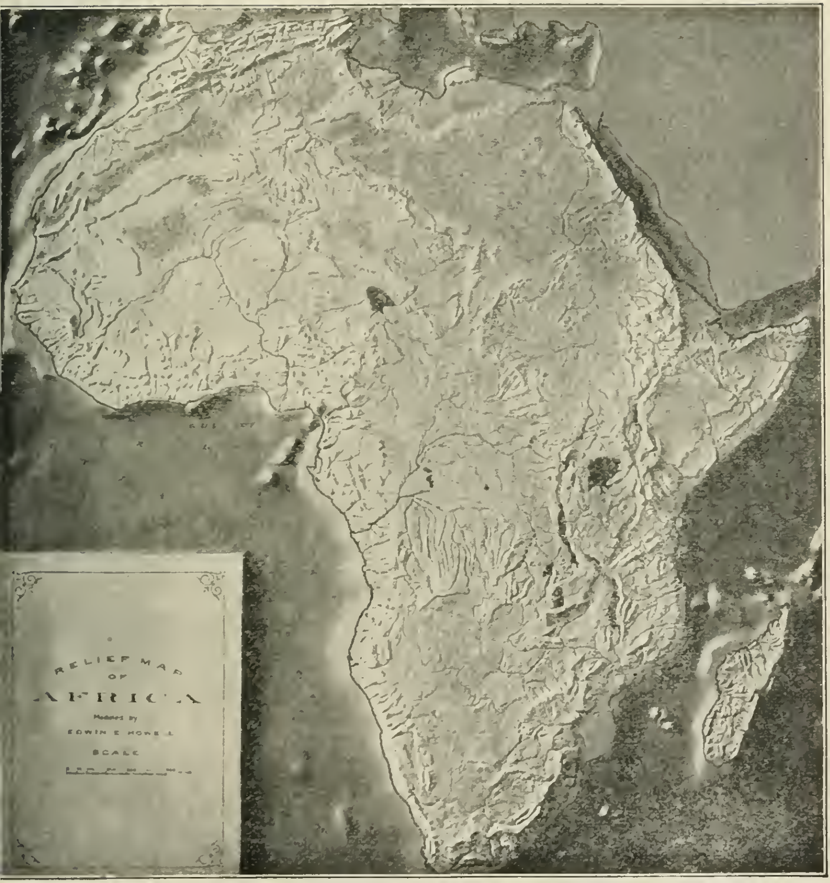
MAP QUESTIONS. — (1) What continent does Africa most resemble in shape? (2) In what parts are the chief mountain ranges? (3) Find the main slopes on the continent by a study of the rivers? (4) Name and trace the three largest rivers. (5) About how much of Africa lies in the torrid zone? (6) How does its coast line compare with that of Europe as to regularity? (7) What influence must that have upon the harbors?

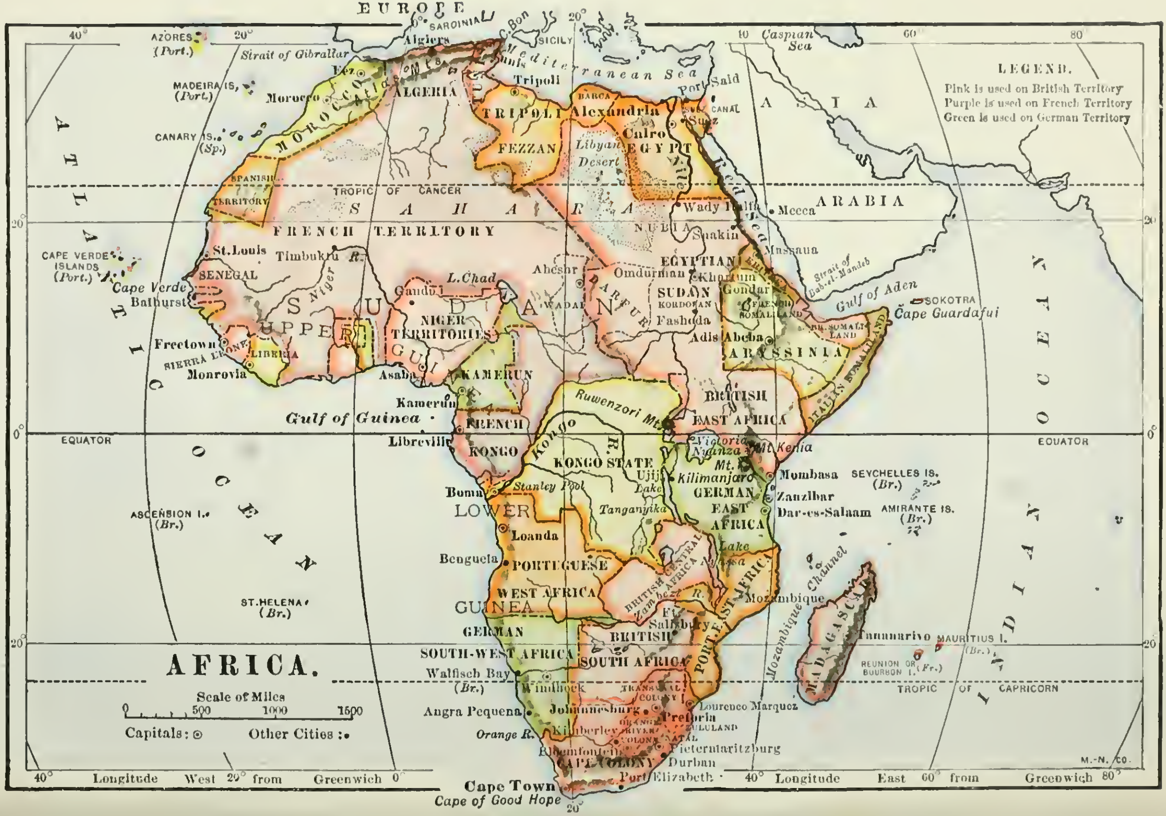
The Dark Continent. — Although Africa is so near Europe that they almost join at the Strait of Gibraltar, and although it is one of the oldest continents that history tells about, it is the least known of them all.

There are several reasons for this. In the first place, south of the Mediterranean Sea is a broad desert, extending entirely across the continent. This, a part of which is called the Sahara Desert (Our Home, Fig. 69), is about a thousand miles wide, and very difficult to cross.

South of this desert for more than a thousand miles the country is covered with a forest where the rainfall is heavy: and near the equator the vegetation is so rank that an almost impenetrable jungle is formed, like that of the Amazon. It is inhabited by large and fierce animals, such as the elephant, tiger (Fig. 20), and lion.

The rivers offer further obstacles to travel. The continent is mainly a plateau, varying from one-fourth to one and one-half miles in height: and its rivers on approaching the ocean have numerous rapids and falls, so that boats cannot make their way continuously up-stream.


RELIEF MAP
OF
AFRICA
Modeled by
EDWIN E HOWELL
SCALE



AFRICA.

LEGEND.
Pink is used on British Territory
Purple is used on French Territory
Green is used on German Territory
Scale of Miles
0
500
1000
1500
Capitals: ⊙
Other Cities: •
EUROPE
ASIA
ARABIA
ATLANTIC OCEAN
INDIAN OCEAN
EQUATOR
TROPIC OF CANCER
TROPIC OF CAPRICORN
Longitude West 20° from Greenwich 0°
40° Longitude East 60° from Greenwich 80°
M.-N. CO.
AZORES (Port.)
MADEIRA IS. (Port.)
CANARY IS. (Sp.)
CAPE VERDE ISLANDS (Port.)
ASCENSION I. (Br.)
ST. HELENA (Br.)
SARDINIA
SICILY
C. Bon
Strait of Gibraltar
Mediterranean Sea
Caspian Sea
Red Sea
Gulf of Aden
Strait of Bab-el-Mandeb
SOKOTRA
Cape Guardafui
Gulf of Guinea
Mozambique Channel
SEYCHELLES IS. (Br.)
AMIRANTE IS. (Br.)
MAURITIUS I. (Br.)
REUNION OR BOURBON I. (Fr.)
MADAGASCAR
Tananarivo
Algiers
Tunis
Fez
Morocco
MOROCCO
Atlas Mts.
ALGERIA
Tripoli
TRIPOLI
FEZZAN
BARCA
Alexandria
Cairo
EGYPT
Libyan Desert
Nile
Port Said
Suez
CANAL
Mecca
SAHARA
SPANISH TERRITORY
FRENCH TERRITORY
St. Louis
SENEGAL
Timbuktu
Niger R.
Cape Verde
Bathurst
Freetown
SIERRA LEONE
LIBERIA
Monrovia
UPPER GUINEA
SUDAN
L. Chad
Gando
NIGER TERRITORIES
Asaba
KAMERUN
Kamerun
Abeshr
WADAI
DARFUR
NUBIA
Wady Halfa
Suakin
Massaua
EGYPTIAN SUDAN
Omdurman
Khartum
KORDOFAN
Fashoda
Gondar
FRENCH SOMALILAND
BR. SOMALILAND
ITALIAN SOMALILAND
Adis Abeba
ABYSSINIA
BRITISH EAST AFRICA
Ruwenzori Mt.
Victoria Nyanza
Mt. Kenia
Mt. Kilimanjaro
Mombasa
Zanzibar
Dar-es-Salaam
GERMAN EAST AFRICA
Ujiji
Lake Tanganyika
Lake Nyassa
KONGO STATE
Kongo R.
FRENCH KONGO
Libreville
Boma
Stanley Pool
LOWER GUINEA
Loanda
Benguela
PORTUGUESE WEST AFRICA
BRITISH CENTRAL AFRICA
Zambezi R.
Ft. Salisbury
Mozambique
PORTUGUESE EAST AFRICA
BRITISH SOUTH AFRICA
GERMAN SOUTH-WEST AFRICA
Walfisch Bay (Br.)
Windhoek
Angra Pequena
Orange R.
Johannesburg
TRANSVAAL COLONY
Pretoria
Lourenco Marquez
ZULULAND
ORANGE RIVER COLONY
NATAL
Kimberley
Bloemfontein
Pietermaritzburg
Durban
CAPE COLONY
Port Elizabeth
Cape Town
Cape of Good Hope

Not only are there deserts, unnavigable rivers, and dense forests with fierce animals, but there are hordes of savages belonging to the black race. It was from Africa that *negroes* were first brought to this continent as slaves, and on that account those now here are often called Africans.

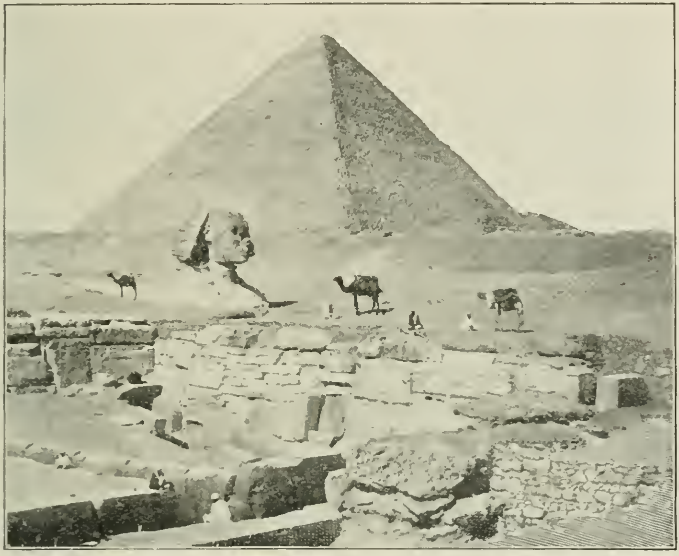


FIG. 220.

The Great Pyramid and the Sphynx. What animals are those standing on the desert sands near the Sphynx?

Here, then, are several reasons why we know so little about Africa, which, because of this, and because so many blacks live there, is sometimes called the "dark continent."

Northern Africa. — The African side of the Mediterranean Sea, being so close to Asia and Europe, has long been settled by the white race. Many of the inhabitants are Arabs, who, being believers in Mohammed, still make pilgrimages to Mecca in Arabia, like other followers of that prophet.

The best-known country in this section is Egypt, and CAIRO, its capital, is the largest city in Africa, being about the same size as Boston in the United States. ALEXANDRIA is the chief Egyptian port.

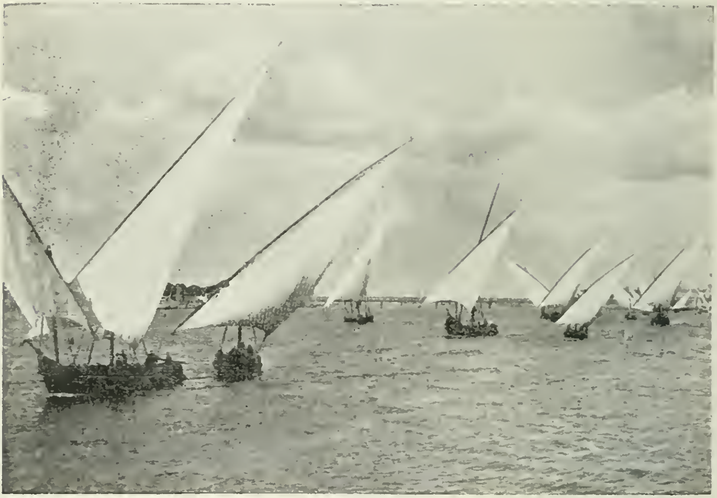


FIG. 221.

A fleet of Egyptian boats on the Nile.

This is the country over which the Pharaohs, the kings of Egypt, used to rule; and the ruins of the immense pyramids and monuments that they built thousands of years ago may still be seen. Here, the Bible tells, Moses once lived, and Joseph also. What stories do you remember about them?

Most of Egypt is a desert country, like Arabia on the one side and the Sahara Desert on the other. The Nile

River flows through this desert, and every year the heavy floods from the mountains of Abyssinia and the forest country near the equator, cause it to rise higher and higher until it overflows its banks. These floods, spreading out over the flood plain and level delta of the Nile, irrigate the land.

Fig. 222.
Climbing the pyramids.

As in other rivers, the water carries with it an abundance of mud, which settles in a thin layer of rich soil upon the flood plain, making it so fertile that excellent crops of cotton, sugar-cane, and grain can be raised after the water is gone. By this means millions of people obtain food, although they live in a desert region. A great dam is now being built across the upper Nile, to regulate the water-supply and irrigation.

The eastern part of Egypt includes the isthmus of Suez, which connects Africa with Asia. Because of this narrow neck of land, ships sailing from Europe to Asia were compelled to go all the way round Africa: but in 1869 a canal one hundred miles long was completed across the isthmus, so that vessels can now make a short cut. Estimate how many miles are saved by the Suez Canal in going from London to Calcutta.

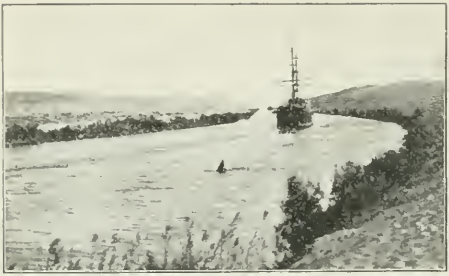


FIG. 223.
A ship passing through the Suez Canal.

Egypt is nominally governed by the *Khedive*, who owes allegiance to the Sultan of Turkey, but it is, in fact, governed by a British official, under the authority of the British Government.

Name the countries west of Egypt along the Mediterranean coast. What are their capitals? Tripoli and Barca, like Egypt, are nominally tributary to Turkey. ALGERIA is a province of France, which country also controls the greater part of the Sahara Desert. MOROCCO is an independent absolute monarchy, governed by a Sultan. Their products are similar to those on

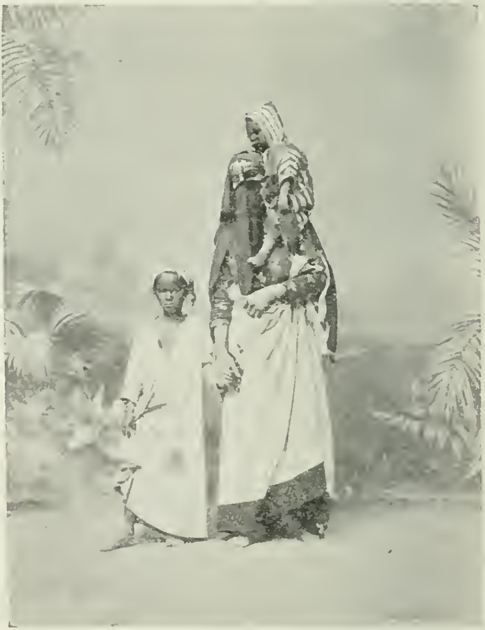


FIG. 224.
An Egyptian woman and children.

the northern side of the Mediterranean. What are some of them?

The Moors, who form the largest part of the population of northern Africa, are a mixed race of Arabic origin. They formerly controlled Spain, but were finally conquered and driven from there the year before Columbus discovered America.

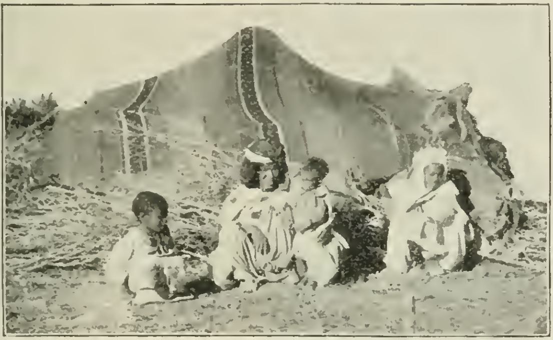


FIG. 225.

A family camped on an oasis in the desert of Morocco.

On the desert of Sahara few people are able to live. Some parts are sandy plains, while others are rocky and hilly, and in places even mountainous. But here and there, as in Arabia, are *oases* where water comes from underground, so that grass and date palms are able to grow. Sometimes these oases are so large that villages are built upon them; and the caravans that cross the desert to bring ivory and other products from the south, make their stops at these places. Some of these caravans consist of hundreds of camels, so that there is need of much food and water.

Central Africa. — Until a few years ago this was a wilderness that no civilized man had ever visited; but now much of it has been explored. The natives are mainly savage blacks: and the Arabs, who go there to purchase ivory, still carry large numbers of them away as slaves.

The northern part is called the Sudan. Near the borders of the Sahara the country is a desert; but this condition gradually changes until, farther south, the land is covered with a dense tropical forest, for the rains are heavy near the equator. In this region live the lion, rhinoceros, giraffe, and elephant, the latter being killed for the sake of its ivory tusks. Some of the forest woods are valuable, and since the rubber tree flourishes there, as along the Amazon, rubber is another product (see p. 143).

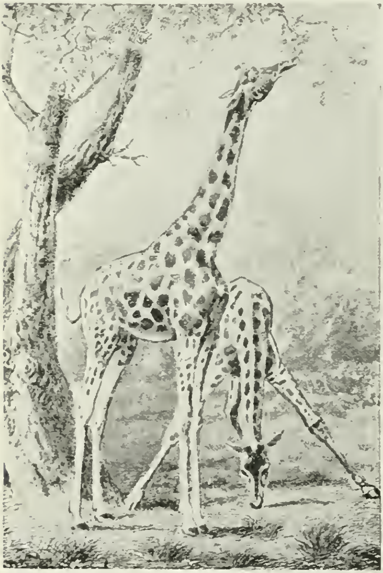


Fig. 226.
Giraffes feeding.

The two great rivers of this region are the Niger, north of the equator, and the Kongo, south of it. They are the main roads leading inland, although their falls and rapids greatly interfere with travel. Throughout that entire region there are no waggon roads, so that goods must be carried either on the rivers or over paths or trails in pack trains. But this situation is improving as the nations of Europe obtain more and more control. At the present time, several European countries claim parts of Africa, Great Britain having the largest share, as you will see from the map, and they are introducing civilized laws, railways, and other improvements.

The Kongo Free State, a vast tract of land four times the size of Ontario, has sprung out of the discoveries of Sir Henry Stanley. It is founded on the principles of free trade, and is recognized by the leading powers of Europe and by the United States. It is under the presidency of the King of Belgium, and will probably be made a Belgian colony.

Abyssinia. — This is a mountainous territory in the east, and is the only central African country where the natives are at all civilized and partially Christianized.

XXIX. SOUTH AFRICA: CAPE COLONY, NATAL, TRANSVAAL COLONY, ORANGE RIVER COLONY, ETC.

Southern Africa is the best developed section of the continent. It was originally settled by the Dutch, though the greater part has now come under the control of Great Britain. Part of it is a high plateau, with a warm temperate climate, having many of the same products as this continent. Most of the people are engaged in farming and ranching, producing grain, wool, and hides. Wool is one of the principal articles of export. Ostrich farming is also an important industry in Cape Colony, the beautiful feathers of the male bird being very valuable.

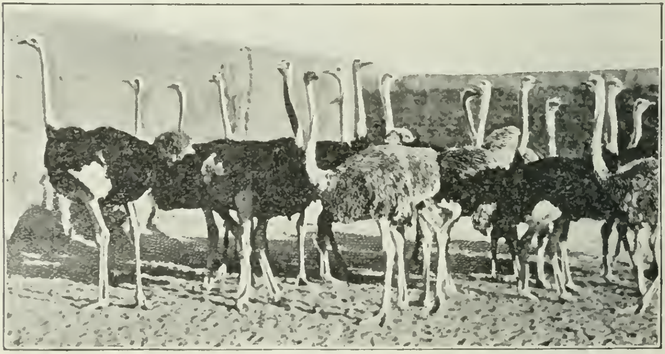


FIG. 227.

A group of ostriches in South Africa.

The dominant native races are various tribes of Kaffirs, a warlike people, far superior to the negroes of Central Africa. There are also some Hottentots, a stunted race, but they are gradually disappearing.

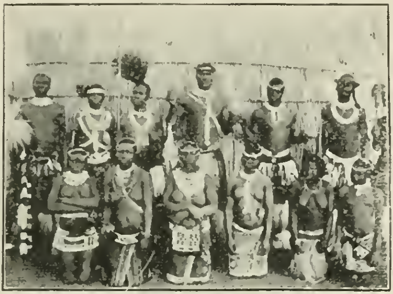


FIG. 228.
Kaffirs, South African savages, in full dress.

Portions of South Africa have been long settled by Europeans, and are divided, as you will see by the map, between the British, Germans, and Portuguese. The larger part, as well as the most valuable, belongs to Great Britain. CAPE COLONY and NATAL are British colonies, having their own governments as in Canada. The other parts of British South Africa are still under the direct control of the Imperial Government, but

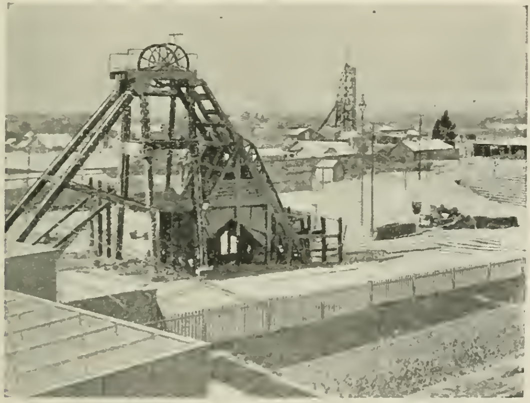


FIG. 229.
A picture of the De Beers diamond mine at Kimberley.

as in the case of our Territories, will be formed in course of time into separate self-governing colonies.

The TRANSVAAL and ORANGE RIVER COLONIES were until lately independent Dutch Republics. They declared war against Great Britain, and attempted to raise an insurrection in Cape Colony, but failed in their object.

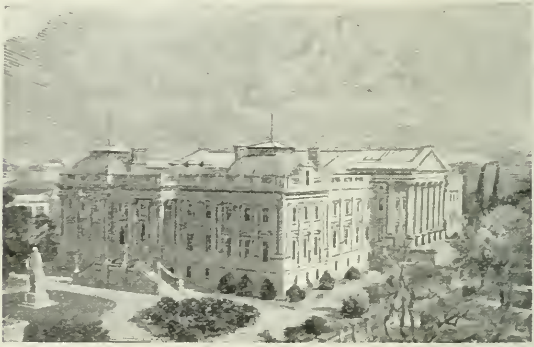


FIG. 230.

A view in Cape Town. The Government buildings: Table Mountain in the background.

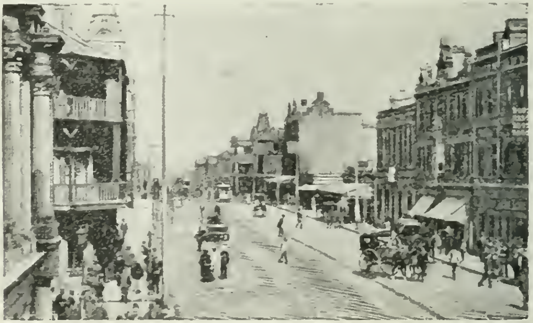


FIG. 231.

Johannesburg in 1899.

These republics have now been made into British colonies under the direct control of the British government. The people of these republics are generally called *Boers*, which is the Dutch word for farmer.

A railway is now in course of construction by Great Britain from Cape Town in Cape Colony to Cairo in Egypt. How will this compare in length with the Canadian Pacific Railway (see p. 94)?

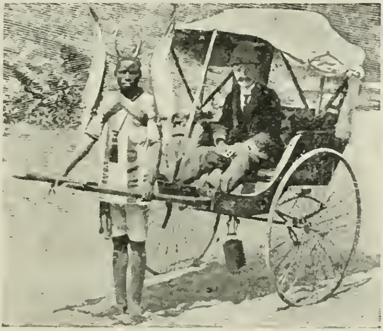


FIG. 232.
Travelling in a jinricksha at Durban.

CAPE TOWN is the capital of Cape Colony and the principal seaport and centre of commerce.

JOHANNESBURG is the centre of the richest gold-mining region in the world, and more diamonds are obtained from near KIMBERLEY than from any other part of the globe. PIETERMARITZBURG is the capital of Natal, and DURBAN the chief seaport.

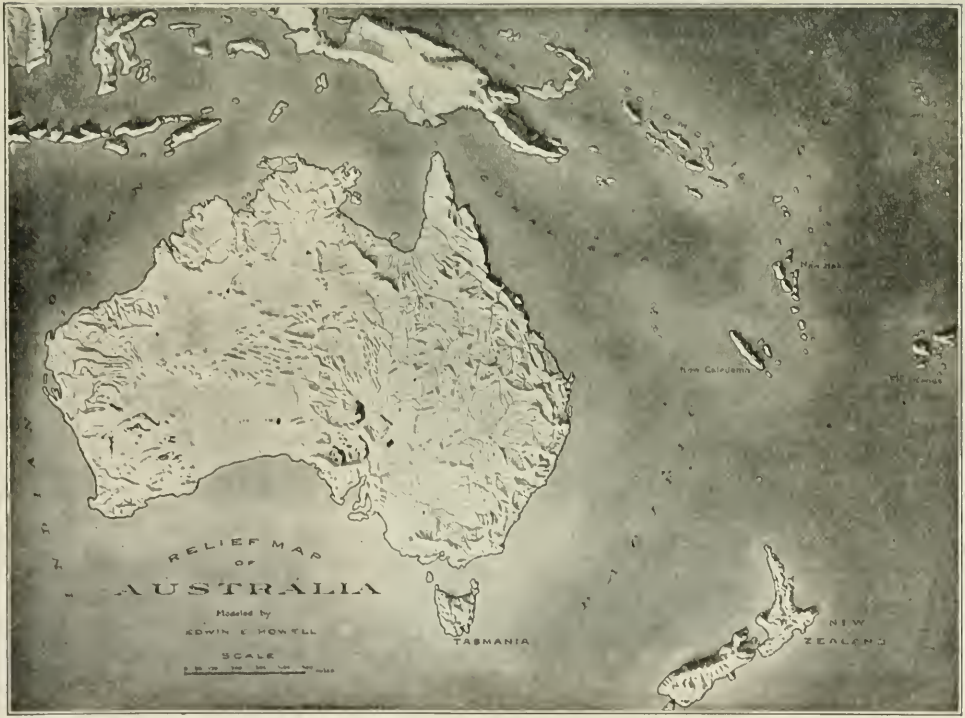
Islands near Africa. — The large island of MADAGASCAR is two hundred and forty miles from the mainland, and is five times as large as Newfoundland. It is chiefly inhabited by a tribe of Malays, called *Hovas*, but is controlled by France. What is the chief town? What islands near Madagascar belong to Britain? What islands are near the west coast of Africa? To whom do they belong? ST. HELENA is noted as having been the prison home of Napoleon Bonaparte, and later of many of the Boers from the Transvaal and Orange Free State in Africa.

XXX. THE COMMONWEALTH OF AUSTRALIA, NEW ZEALAND, THE EAST INDIES, PHILIPPINES, AND THE OTHER ISLANDS OF THE PACIFIC

Map Questions. — (1) Find Australia on a globe and show how you would reach it from Halifax in a vessel. Through what waters would you pass? (See Fig. 30.) (2) From Vancouver? From London? (3) In what part are most of the mountains? (4) The rivers? (5) The cities? (6) In what zones is Australia? (7) Will there be any cold winter on this continent? (8) Look on a globe, or on map, Fig. 30, to see what other continents are in the same zones. (9) Which are the principal islands of the East Indies? Find Batavia. (10) In what direction are the Philippine Islands from Australia? (11) Estimate the distance. (12) What is the capital of the Philippine Islands? (13) Find the Hawaiian Islands.

The Commonwealth of Australia. — This is another important part of the British Empire, or Greater Britain. The whole of the colonies of the great island continent of Australia were formed in 1901 into a Confederation, similar to that of Canada. Name these colonies from the map. Name their capitals and tell where they are situated. In the commonwealth is also included the Island of Tasmania, south-east of Australia. What is the capital?

Australia is the smallest of the continents, being rather less in size than Canada, or about the size of the United States, not including Alaska. It is a low plateau, with


RELIEF MAP
OF
AUSTRALIA
Modeled by
EDWIN E HOWELL
SCALE
Miles
TASMANIA
NEW
ZEALAND
New Caledonia
New Heb.
Fiji Islands
SOLOMON IS.

the chief mountain range close to the eastern shore. These mountains have much influence on the climate; for, since the prevailing winds are from the south-east, as they reach this range, and rise to pass over it, they grow cooler and lose most of their moisture. If the mountains were on the western side, as the Andes are in South America, nearly the whole country might be well watered, like the Amazon Valley. As it is, however, the eastern coast of Australia has abundant rain, while farther westward it becomes drier, until, at a distance of one hundred and fifty miles from the coast, farming is almost impossible.

FIG. 234.
A forest of tree ferns in Australia.

Surface. — What about the country farther west? With what part of Africa should it be compared? Where must the chief rivers be? Where might we expect to find salt lakes? The best farm land? The principal cities and most of the people?

Now examine the map to see if you are right. Where is the large desert? (It is dotted.) What is the name of the main river? There is often so little rain, even on the lower part of the Murray River Basin, that the river grows smaller toward its mouth; and its chief tributary, the Darling, dries up almost entirely.

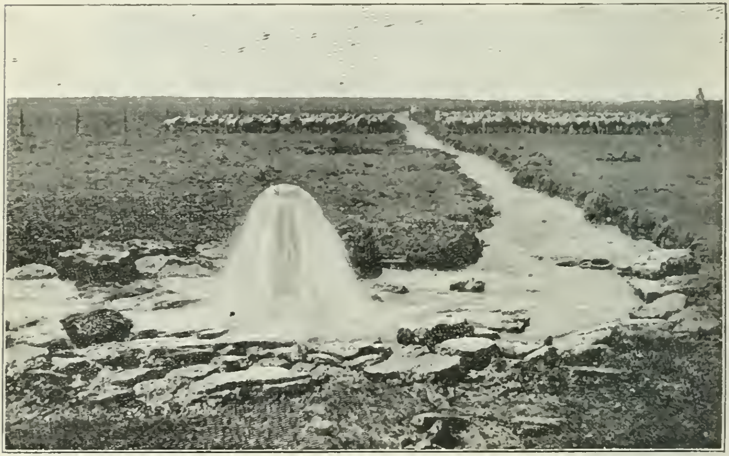


FIG. 235.

A sheep run in Australia. The water in this artesian well rises from a layer of porous rock over six hundred feet below the surface.

Lakes are numerous, but nearly all are salt, and indeed scarcely deserve the name of lake, as they are dependent on the rivers and floods. At one time they form immense reedy swamps: at another, vast areas of submerged flats, with broad mud banks for shores that render the water quite unapproachable. Why are these lakes salt?

In many districts artesian wells have been sunk (Fig. 235), and these supply abundant water. In Queensland there are over 350 of these.

Plants and Animals. — When the British began to colonize this country, they found it inhabited by a very low class of savages; and the plants and animals were different from those in other parts of the world. A great part of the interior was covered with a low bush, called "scrub," having hard, prickly leaves and often growing so dense that it was difficult for one to make his way through it. It caused the country to look desolate indeed.

Almost all the trees are evergreens. Some have vertical leaves, which cast no shade, and shed their bark instead of their leaves. The characteristic trees are the eucalyptus or gum tree, which does not grow in dense forests, but thinly scattered over the surface; and the acacia or wattle, the leaves of which have shrunk to thorns.

There are none of the fierce animals common to other countries. The largest is the kangaroo, which is furnished with a sack or pouch for carrying its young. Instead of running on all fours, it jumps along on its hind legs, using its tail for support (Fig. 236).

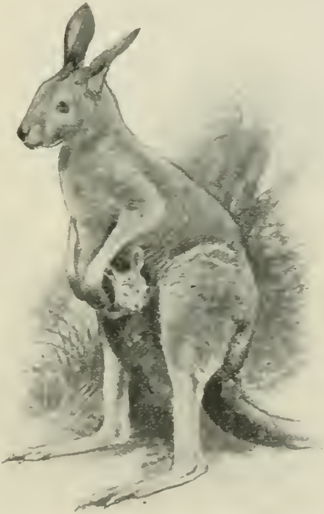


FIG. 236.
An Australian kangaroo.

Finding the native plants and animals of little use, the settlers began to import some. Sheep were taken there and found to thrive; for the temperature is so mild that they are not exposed to cold, and some of the plants furnish excellent food. Consequently, great sheep ranches or *sheep runs*, as they are called there, have been established. The best sections for this purpose are Victoria and New South Wales, where wool has become one of the chief exports. Indeed, Australian wool is the best in the world.

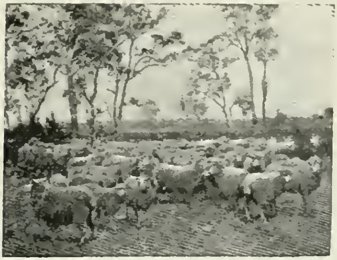


FIG. 237.
An Australian sheep run.

The imported cattle have likewise multiplied, so that hides and meat are produced in abundance. Wheat and corn also flourish, and many fruits, such as we know, are now plentiful in that region.

Amongst other animals imported into Australia, the rabbit is one which has multiplied to such an extent as to become a pest. Owing to the ravages these animals commit in the pastures, the governments of the colonies have been obliged to offer rewards for their destruction.

Coast Line. — You will notice that the coast line is but little broken, except by the two great indentations, the Gulf of Carpentaria and the great Australian Bight, which, being opposite to each other, would seem to divide the continent into eastern and western portions. In the north-east is the Great Barrier Reef (Fig. 238), extending for about 1000 miles, at an average distance of about 30 miles from the coast.

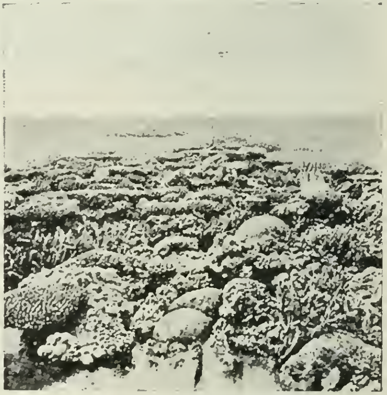


FIG. 238.
Patch of corals on the great Barrier Reef of Australia.

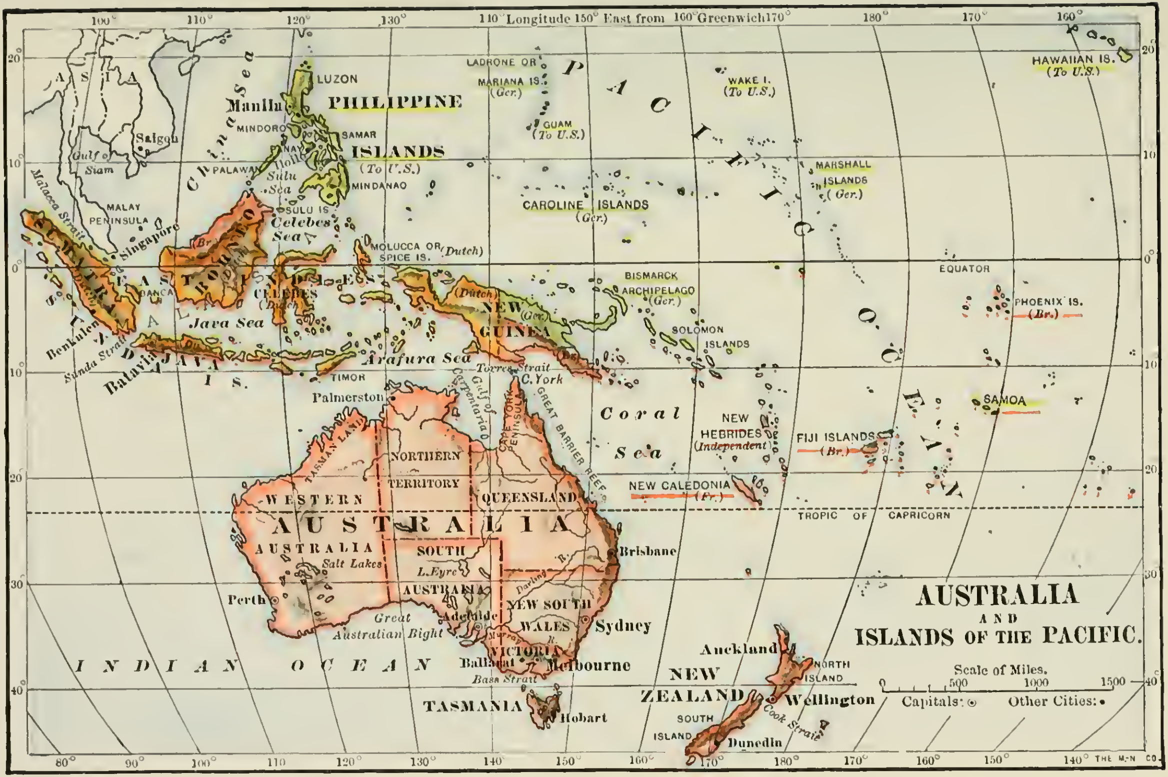

AUSTRALIA
AND
ISLANDS OF THE PACIFIC.
Scale of Miles.
0
500
1000
1500
Capitals: ⊙
Other Cities: •
110° Longitude 150° East from 160° Greenwich 170°
ASIA
Gulf of Siam
Saigon
MALAY PENINSULA
Singapore
Malacca Strait
SUMATRA (Dutch)
Benkulen
Sunda Strait
Batavia
JAVA
BANCA
EAST INDIES
BORNEO (Br.) (Dutch)
China Sea
Manila
LUZON
MINDORO
PALAWAN
PANAY
Iloilo
SAMAR
MINDANAO
PHILIPPINE ISLANDS (To U.S.)
Sulu Sea
SULU IS.
Celebes Sea
CELEBES (Dutch)
MOLUCCA OR SPICE IS. (Dutch)
Java Sea
TIMOR
Arafura Sea
Torres Strait
NEW GUINEA (Dutch) (Ger.) (Br.)
LADRONE OR MARIANA IS. (Ger.)
GUAM (To U.S.)
CAROLINE ISLANDS (Ger.)
WAKE I. (To U.S.)
MARSHALL ISLANDS (Ger.)
HAWAIIAN IS. (To U.S.)
PACIFIC OCEAN
EQUATOR
PHOENIX IS. (Br.)
SAMOA
BISMARCK ARCHIPELAGO (Ger.)
SOLOMON ISLANDS
NEW HEBRIDES (Independent)
FIJI ISLANDS (Br.)
NEW CALEDONIA (Fr.)
Coral Sea
GREAT BARRIER REEF
C. York
CAPE YORK PENINSULA
Gulf of Carpentaria
Palmerston
TASMAN LAND
NORTHERN TERRITORY
QUEENSLAND
WESTERN AUSTRALIA
AUSTRALIA
SOUTH AUSTRALIA
L. Eyre
Salt Lakes
Perth
NEW SOUTH WALES
Darling R.
Murray R.
Brisbane
Sydney
Adelaide
VICTORIA
Ballarat
Melbourne
Great Australian Bight
Bass Strait
TASMANIA
Hobart
TROPIC OF CAPRICORN
INDIAN OCEAN
NEW ZEALAND
Auckland
NORTH ISLAND
Wellington
Cook Strait
SOUTH ISLAND
Dunedin
THE M-N CO

Fig. 233

Mining. — The presence of mountains suggests that metals might exist there, which is the case. For many years Australia has ranked as one of the most important gold-producing countries of the world.

The discovery of gold in Australia (1851), shortly after the discovery of the same precious metal in California, led to a great immigration from Great Britain. The necessity of providing provisions for the miners next led to the introduction of cattle and sheep and to farming. Many shiploads of frozen beef and mutton are now being sent continually to Great Britain.

Since these industries have become very extensive, especially in the rainy south-eastern part, we see why several great cities have grown up in that section. The largest is MELBOURNE, the capital of Victoria, which is more than twice as large as Montreal. The next is SYDNEY, the capital of New South Wales, nearly as large; and the third is ADELAIDE, the capital of South Australia.

Manufacturing is not yet greatly developed, so that quantities of wool, hides, metals, etc., are exported, going mainly to Great Britain. Some of the imports that must be received in return you can probably name.

The **New Zealand Islands** belong to Great Britain but are not included in the Commonwealth of Australia. The climate and the industries of the people resemble those of Australia, and the exports are also similar. What is the capital? What other cities are found there? Do you remember the geysers for which the Yellowstone National Park is noted (p. 126)? New Zealand and Iceland are the only two other parts of the world where geysers are found.

The New Zealand Islands are mountainous, and contain much beautiful scenery. They are nearly as large as the British Islands.

Although comparatively so near to Australia, the native plant and animal life are different, there being no native tree like the eucalyptus, nor animals like the kangaroo. The native inhabitants, called Maoris (Fig. 239), are also of a much superior race to the native Australians.

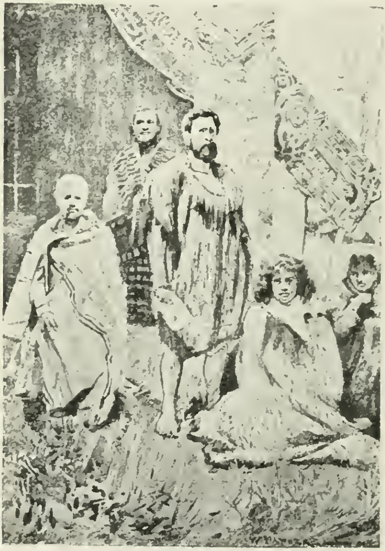


FIG. 239.
A group of Maoris in New Zealand.

The East Indies. — Between Australia and Asia are a large number of Islands, many of them too small to place upon the map. What are the names of some of the largest of this group, or archipelago, known as the EAST INDIES? The one that you have probably heard about most often is JAVA, from which the Java coffee comes.

The British possessions in these islands are: the small island of LABUAN, off the north-west coast of Borneo, and parts of BORNEO and NEW GUINEA. Among the forests of these islands are many different kinds of valuable tropical woods. Sugar, tobacco, pepper, spices, and precious stones are other valuable products.

These islands, like those of the Japanese Empire, are the crests of mountains in the sea. Among them are many very active volcanoes, some of them having caused terrible destruction by their frightful eruptions. In the south are the loftiest peaks, crowned with perpetual snow. The islands belong to European countries, and you will find the names of these countries marked on the map.

There is a large native population, chiefly Malays, in all the islands, but the whole white population in the Sunda Islands (Dutch) does not exceed 70,000.

The Philippine Islands. — These islands were taken possession of by the United States during the late war with Spain, and the principal city is MANILA, on Luzon Island, where the United States fleet under Admiral Dewey destroyed the Spanish fleet.

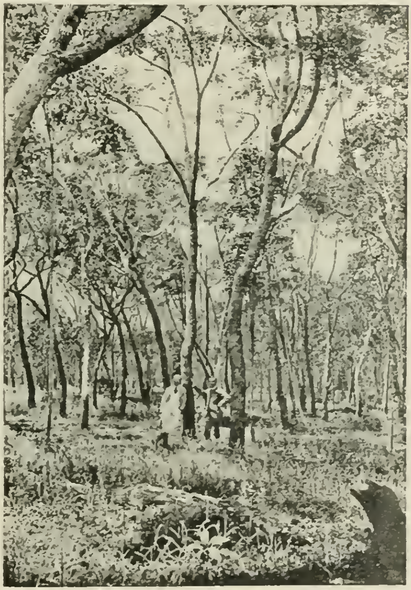


FIG. 240.

A grove of quinine (Peruvian bark) trees in the island of Java.

Notice (Fig. 204) that they lie between the Japanese Islands and the East Indies, both of which were said to be mountain ranges in the sea. The Philippines are also mountains, forming a part of the same chain.

There are valuable kinds of wood in the forests, and many mineral deposits; but these were never much used by the Spaniards. The chief products have been sugar, tobacco, and hemp, which is used in making ropes. It is probable that now their mineral and other resources will be developed.

On these islands dwell several different races. There are still many savages there, especially in the dense forests of the interior (Fig. 8). Some of them are called Negritos, or little negroes. On the Sulu Islands are Mohammedans, called Moros. The Tagalogs belong to the more advanced tribes, who have learned some of the arts of civilization from the Spaniards.

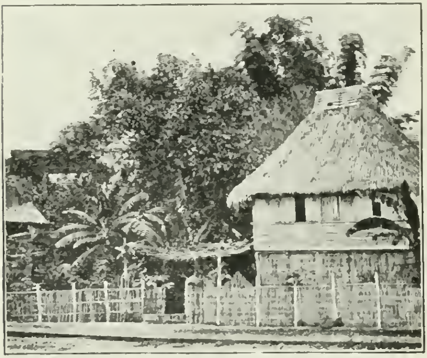


FIG. 241.

A native house in Manila. In order to be well above the damp ground, the people live in the upper part. Notice the bamboo fence.

Islands of the Pacific. — There are many hundreds of islands in the Pacific Ocean, some of them being tiny coral islands, others large and mountainous. They are all located where mountain ranges or volcanic peaks rise from the great plain of the ocean floor.

Find the position of the FIJI ISLANDS. They are also British. What other groups of small islands do you see in that region? What large island is just north of Australia? In what zone does it lie? One part is British, one part Dutch, and one part German. All of its products are tropical, and it is covered with a dense forest and inhabited by fierce savages. Very few Europeans live there.

Among the islands of the Pacific we must not forget to mention the HAWAIIAN ISLANDS, which belong to the United States. They are situated in the mid-Pacific on the way from Vancouver to Australia, and consist of a number of islands, the largest being Hawaii. All of them are volcanic, and on Hawaii are two of the largest volcanoes in the world (Fig. 10). Being in the torrid zone, their climate is warm enough for sugar raising, and this is one of the principal industries of the islands. Where else have we found this industry? HONOLULU is the capital and largest city. The steamships to and from Australia and Vancouver call here.

FANNING ISLAND, a small island belonging to Great Britain, and situated south of the Hawaiian Islands, is to be a station for the Pacific telegraph cable between Vancouver and Australia.

REVIEW QUESTIONS

I. FORM AND SIZE OF THE EARTH

Review Questions. — (1) What did people formerly know about the shape of the earth? (2) What is its form? (3) Tell the story of Columbus. (4) Why did he call the savages Indians? (5) Why was the land he discovered called the New World? (6) Tell about Magellan's voyage. (7) Explain why the earth does not appear to us to be a sphere. (8) What is the diameter of the earth? The circumference? (9) The latter is how many times the former?

Suggestions. — (1) Read something about the life of Columbus. (2) Read about Magellan. (3) Find the names of some other early explorers and read about them. (4) Trace Columbus's journey on a globe to see where he actually went. Find India in order to see where he thought he had gone, and notice how one can go to India by travelling eastward as well as westward. (5) Make a sphere in clay. Measure its diameter with a needle. (6) How many proofs can you find that the earth is round? Find out how we know that it is like a ball and not like a cylinder. (7) Write a story about Columbus. (8) Trace on a globe the route followed by our soldiers who went to South Africa. How many days are required for such a journey? (9) Obtain a telescope or an opera-glass and look through it at the moon.

II. MOTIONS OF THE EARTH AND THEIR RESULTS

Review Questions. — (1) What motion has the earth? (2) What is the axis of the earth? (3) The north pole? The south pole? (4) Represent the axis and poles by using an apple. (5) Walk toward the north pole. Toward the south pole. (6) What is the equator? (7) How long does it require for the earth to turn completely around once? (8) What rate of travel is that for a point upon the equator? (9) Why are we not thrown away from the earth? (10) Give several examples showing what is meant by gravity. (11) In what direction is the earth rotating? (12) How does that explain sunrise and sunset? (13) What causes night? (14) What would be the result if the earth did not rotate? (15) When it is noon here, what time is it on the other side of the earth? (16) How long must the day and night together last? Why?

SUGGESTIONS. — (1) Point out the axis of a wheel; of a top; of a rotating ball; of a spinning globe. (2) Mark the two poles on an apple or ball, and then a line for the equator. (3) Mould a sphere in clay, and show the poles and the equator. Cut it in halves, and mark a line for the axis. (4) Find exactly how many miles a point on the equator moves each hour. (5) Use a horse-shoe magnet to attract pieces of iron. (6) Use a globe, or apple, and a lamp to show why the sun appears to rise and set, and why it is day on one side while it is night on the other. (7) Watch the stars in the east some night, to see which way they appear to move. (8) Why do not the clouds appear to move westward also? (9) Is the sun always shining during the day? Why, then, do we not always see it? (10) Who was Atlas? Who was Aurora? (11) Find out what the ancients supposed became of the sun each night. (12) When it is noon here, what time is it one-fourth of the distance around the earth to the east? To the west? (13) What might be some of the effects if each rotation lasted longer than twenty-four hours? (14) If much less?

III. THE ZONES

REVIEW QUESTIONS. — (1) What is the cause for the great heat in the torrid zone? (2) What are its boundaries? (3) What other zones are there? What are their boundaries? (4) In which direction does the midday sun lie in each zone? (5) In which direction do the shadows then fall? (6) Why should the heat grow less, the farther one travels from the equator? (7) Why has no one ever been able to reach either pole? (8) Which part of the earth has no cold weather? (9) Which part has no hot weather? (10) Point out the zones in Figure 7. (11) Represent them in a drawing of your own. (12) Name the hemispheres and tell where each is.

SUGGESTIONS. — (1) Find out more about the reason why the sun's rays are hotter when the sun is overhead than when it is low in the heavens. (2) Write a story telling about the changes in clothing you would need to make in passing from the north to the south pole. (3) In which direction would you look to see the sun at noon on such a journey? (4) How might the changes in heat affect the growth of trees and other plants? (5) How would the direction of your shadow change? Its length? (6) If there were no watches or clocks, how could you tell the time of day from the sun? (7) Find out about some of the men who have tried to reach the north pole. (8) In which zone should you prefer to live? Why? (9) Explain how some places in the temperate zone are warmer than some in the torrid zone.

IV. HEAT WITHIN THE EARTH AND ITS EFFECTS

Review Questions. — (1) What is known about the temperature of the earth below the surface? (2) What does that suggest? (3) What other proof of this conclusion is there? (4) What is a volcano? (5) What is the crust of the earth? (6) What happens as the interior cools? (7) Compare this with the drying of an apple. (8) How have the ocean basins and continents been formed? (9) What do fossils in the rocks prove?

Suggestions. — (1) Collect pictures of volcanoes; of earthquakes. Read about some volcanic eruption. (2) Make a drawing of a volcano. (3) Dry an apple and notice the change. (4) Not all rocks contain fossils; but examine those in your section to find if they do. (5) If you live near a beach, notice how shells are covered by the sands. (6) If a mine were a mile deep, what would be the temperature at the bottom, if the average temperature at the surface is 45°?

V. THE CONTINENTS AND OCEANS

Review Questions. — (1) Name the five continents, counting Eurasia as one. (2) Write their names. (3) Walk toward each of them. (4) Tell what you can about each. (5) Where is the Arctic Ocean? The Antarctic? (6) Tell something about the people and animals of the Arctic region. (7) What oceans touch North America? (8) Name five oceans. Which is the largest? (9) How deep is the ocean water? (10) Name some of the animals that live in it. (11) What are the conditions on the ocean bottom? (12) In what ways are islands in the open ocean formed? (13) Explain how coral islands are made.

Suggestions. — (1) Make an outline drawing of each of the continents. (2) Of each of the oceans. (3) Collect pictures of the animals, people, and scenery of the different continents. Many such pictures are printed in the magazines. (4) Write a story about one of the pictures. (5) Write a story about something that you have learned concerning one of the continents. (6) Obtain pieces of coral for the school collection. (7) Study the maps, Figs. 28, 29, and 30, to learn more about the continents and oceans.

VIII. THE DOMINION OF CANADA

Review Questions. — (1) Who were the first settlers in Canada? (2) Where were settlements made? (3) How far did the explorations of the early French pioneers extend? (4) How did Canada come into the possession of Great Britain? (5) What event caused a large increase in the early population of the country? (6) What part of the continent did Canada occupy when it came into the possession of the British? (7) What part was included in Acadia? (8) When was the Dominion of Canada formed?

Suggestions. — (1) Write a short description of the gradual formation of the Dominion. (2) Find out what you can about Jacques Cartier, Wolfe, Montcalm, and other historical characters connected with Canada.

IX. THE ATLANTIC PROVINCES

Review Questions. — (1) Who was the first navigator, of whom we have a record, to visit Nova Scotia? (2) What nation first made a settlement there? (3) How was the country named? (4) Describe the fortress at Louisburg. (5) Why is it an advantage that the coast is so irregular? (6) Why cannot vessels go up the rivers of the Atlantic Provinces? (7) For what are the rivers useful? (8) Mention some of the large seaports. Why are they important? (9) What fisheries are important? Name some of the principal ports for fishermen. (10) What are diked lands? (11) What can you tell of mines and minerals in Nova Scotia? (12) Why is it important to have coal mines near iron mines? (13) Name some of the shipping ports for timber — for deals. (14) How can you reach Prince Edward Island in winter time?

SUGGESTIONS. — (1) Read the story of "Evangeline" and the Acadians. (2) Find out where the scenes described there occurred. (3) Find out what you can about lumbering. Look up pictures illustrating the work. (4) Go into a fish store to see a cod, mackerel, halibut, salmon, etc. (5) Get some specimens of iron and other ores. (6) Get up a school collection of minerals. (7) What minerals can you name? Are any of them found in your province? (8) Explain the ebb and flow of the tide; why are they greater in one place than in another?

X. PROVINCES OF THE ST. LAWRENCE RIVER SYSTEM

REVIEW QUESTIONS. — (1) What is meant by the St. Lawrence River System (see Our Home. p. 45)? (2) What position does Quebec occupy in this system? Ontario? (3) What effect has the position of these provinces on the rivers? (4) How is this advantageous for manufacturing? (5) Name some of the rivers that furnish water-power. (6) Where is the highest navigable point in the St. Lawrence River System? (7) For what is Fort William important? (8) What precious metal is found in the Rainy River District, near the Lake of the Woods? (9) What other minerals are found in the St. Lawrence River Basin? Where? (10) What are the principal points in the St. Lawrence River Basin for lumber? For pulp wood? For square timber? (11) What are the most important industries of Ontario? (12) What products are pumped from wells in western Ontario? (13) How do railway trains pass the rivers between the Great Lakes? (14) What canals must you pass through between Montreal and Fort William? (15) Name the largest cities of Ontario; of Quebec. (16) What river joins the St. Lawrence at Montreal? (17) For what is Ottawa noted? (18) For what is the city of Quebec noted? (19) What islands are in the Gulf of St. Lawrence? (20) What large island at the mouth of it?

SUGGESTIONS. — (1) Describe the lake fisheries and the fish found there. (2) Make a collection of Ontario and Quebec minerals. (3) Find out to how many uses the nickel from the mines of Sudbury can be put. (4) Make a collection of different woods and get pictures illustrating the growth of the trees and their appearance. (5) Write a description of the Algonquin Park. (6) Describe a trip through the islands of the Georgian Bay; through the Lake of a Thousand Islands. (7) Visit a cheese factory and creamery. (8) Tell how a raft passes the Chaudière Falls on the Ottawa River at Ottawa. (9) Write an account of how a vessel passes through a canal. (10) What is the chief difficulty in building a canal? (11) Describe salmon fishing. Give an account of the Labrador and Gulf fisheries.

XI. MANITOBA AND THE NORTH-WEST TERRITORIES

Review Questions. — (1) Compare the size of Manitoba and the North-West Territories with the Eastern Provinces. (2) What about the number of people there? (3) Why are there so few there? (4) How are the North-West Territories governed? (5) Where are most of the people to be found? (6) What great enterprise was necessary in order to open up the country? (7) What is the chief attraction that draws people to this country? (8) Name some of the animals of the North-West. (9) Tell something of the lakes of Manitoba. (10) Where is Winnipeg situated? (11) Give a reason for its importance. (12) Where is cattle-ranching carried on? (13) Why is that part of the country favorable for raising cattle? (14) Name the principal towns for the cattle trade. (15) What great trading company formerly occupied all this country? (16) Tell something about the Indians of the North-West; — about the fur trade. (17) Tell what a visitor may see at the Rocky Mountain Park. (18) What Provisional Districts are there in the North-West? (19) Describe the "Barren Lands."

Suggestions. — (1) Write a story describing a journey from Winnipeg to the Rocky Mountains. (2) How did people formerly travel in summer?—In winter? (3) Describe a journey from York Fort to Fort McPherson. (4) What is the distance from Winnipeg to Calgary? (5) What stories have you read about the fur traders?—About the Hudson's Bay Company?—About the Indians? (6) Write to the office of the Canadian Pacific Railway Company for their illustrated circulars, in which are many views of western scenery.

XII. BRITISH COLUMBIA AND YUKON TERRITORY, THE FAR NORTH AND GREENLAND

Review Questions (Map, Fig. 34).—(1) What is the chief feature of the scenery of British Columbia and the Yukon Territory? (2) Describe the principal mountain ranges. (3) Where is farming carried on? (4) What are the products? (5) What is said about inland navigation? (6) What is the great attraction that brings people to this country? (7) Describe gold mining in British Columbia. (8) What other minerals are found there? (9) Where are the principal mining centres?—The principal coal mines? (10) How is coke produced? (11) Why are the coal mines of British Columbia important? (12) Describe the course of the Canadian Pacific Railway. (13) Why is the railway of great value to British Columbia? (14) How do the trees of this part of the country compare with those in the eastern provinces? (15) Where is H. M. dry-dock situated? (16) What is the principal fishing industry? (17) How are the fish shipped away? (18) What foreign commerce is carried on from Victoria and Vancouver? (19) Where is the seal fishing in the Pacific carried on? (20) What is the Klondike region famed for? (21) How much gold has been taken out of this region in one year? (22) How is the climate there? (23) How can you get from Dawson to Victoria? (24) What is the district in the far north called? (25) What people live there? (26) Describe Greenland.

Suggestions. — (1) Write an account of climbing a high mountain (see Our Home, p. 20). (2) What stories have you read of mountains? (3) Make a list of articles made of gold; of silver; of copper; of lead. Collect some ores of these for your school. (4) Make a drawing of the Pacific coast; of the Yukon territory. (5) Visit a fish market to see some salmon; or, find a picture of one in the dictionary. (6) Write an account of what you know about the salmon. (7) What have you read about coal mines? (8) How are icebergs formed? (9) Write an account of the Eskimos. (10) Why is there so much ice in Greenland and in the Arctic regions? (11) Draw a map of Canada, showing the Provinces, Territories, and the capitals of each. (12) Write the abbreviations used for each Province or Territory in addressing a letter.

XIII. NEWFOUNDLAND

Review Questions. — (1) On what industry does Newfoundland chiefly depend? (2) What currents meet at Newfoundland? (3) Where are the Banks of Newfoundland formed? (4) What are the principal fisheries? (5) Why is the harbor of St. John's important? (6) How is the interior of the island being developed?

Suggestions. — (1) Write an account of what you know about cod fishing on the Banks of Newfoundland; about the seal fishery. (2) What is the difference between the seals of Newfoundland and those of the Pacific Ocean (see p. 131)? (3) Can you tell anything of the discovery of Newfoundland? — Of the early navigators who came there from Europe?

XIV. THE UNITED STATES OF AMERICA

XV. NEW YORK AND THE NEW ENGLAND STATES

Review Questions. — (1) To what country did the United States originally belong? (2) How have they increased their territory? (3) What people originally settled New York State? (4) In what way does the coast resemble Nova Scotia? (5) Why is this an advantage? (6) Mention some of the largest cities? (7) Describe New York, and how it has grown so large. (8) Tell what you can about farming in these States; about lumbering; about manufacturing. (9) Why cannot vessels go up the New England rivers? (10) Why are many manufactories on these rivers? (11) Name some of the principal manufacturing cities; the principal shipping ports; the principal fishing and lumber ports.

Suggestions. — (1) What do you know about the early struggles between the French of Canada and the British of these States? Of the war for Independence? (2) Who were the Puritans?

XVI. ATLANTIC STATES SOUTH OF NEW YORK

Review Questions. — (1) Describe the coast line of these States. (2) Name the chief seaports. (3) What reasons can you give for the growth of these cities? (4) What has made the iron manufactures so important in Pennsylvania and in Alabama? (5) Name the principal cities for the manufacture of iron. (6) Where are coal and petroleum chiefly found? (7) For what industry is Richmond noted? (8) Name the principal cotton shipping ports. (9) What is the capital of the United States? (10) Where is it situated?

SUGGESTIONS. — (1) Write an account of the cotton plant; of the tobacco plant. (2) Visit a cotton-mill, if there is one in your neighborhood. (3) Make a list of the different articles made of cotton. (4) Where does rice grow? (5) What people are the principal laborers in these States? Have you read "Uncle Tom's Cabin," and of the war that made all the slaves free? (6) Find out some facts about Washington and the people that live there. (7) On the map (Fig. 136) there are abbreviations such as Del., Md., Mass., Conn., N. Hamp., N.J., because there is not room for the complete names. What do these stand for? (8) Tell what you know about the fruit from Florida and why it is cultivated there.

XVII. THE MISSISSIPPI VALLEY

REVIEW QUESTIONS. — (1) How far does the Mississippi Valley extend north and south?—East and west? (2) What other great valleys have you learned about, similar to this, although not so great? (3) What are the principal products of this great valley? (4) How do they change as you go south from Manitoba? (5) Where are the chief centres for milling?—For cattle? (6) Name some of the large cities on the Great Lakes; on the Ohio, Missouri, and Mississippi rivers. (7) What is the seaport of the Mississippi Valley? (8) What minerals are found in the northern part of this valley?

SUGGESTIONS. — (1) Find out about sugar and sugar-cane. From what root is sugar extracted equal to that from sugar-cane? (2) Visit a flour-mill and see the process of making flour. (3) Find out how cattle are shipped to Europe; about refrigerator cars; and cold storage. (4) How are grain and cotton packed for shipment across the ocean?

XVIII. THE WESTERN STATES

REVIEW QUESTIONS. — (1) Compare these States with British Columbia. (2) Name the principal mountain ranges. (3) What can you tell about farming in these States?—About mining?—About ranching? (4) What metals are found in the West? (5) Where is each found? (6) What city have the Mormons built? (7) Why cannot the whole desert be irrigated? (8) Where is Los Angeles? (9) Where is the Yellowstone National Park?—The Colorado Canyon? (10) What is a peculiar feature of the Yellowstone National Park? (11) What are the chief products of California? (12) What seaports are on the Pacific coast? (13) Where are they situated? (14) What large river rises in British Columbia and flows into the Pacific between Washington and Oregon? (15) For what fishery is it noted?

SUGGESTIONS. — (1) What stories have you read about the Rocky Mountains?—About the Western Indians? (2) Find out something about the Yosemite Valley in California; about the Yellowstone National Park. (3) Write to the Northern Pacific Railway at St. Paul, Minn., or to the Atchison, Topeka, and Santa Fé Railway at Chicago, Ill., for their illustrated circulars, in which there are many views of Western scenery. (4) Make a drawing of the Pacific Coast, showing the cities. Add the rivers. (5) Find out what large animals live among the mountains.

XIX. ALASKA

REVIEW QUESTIONS (Fig. 31). — (1) Where is Alaska situated? (2) How was it obtained by the United States? (3) In what zones is it? (4) What is done there?

SUGGESTIONS. — (1) Draw the Yukon River. (2) Find out something about a journey to the Klondike. (3) Read something about the fur-seal. (4) Compare it with the Newfoundland seal.

XX. MEXICO AND CENTRAL AMERICA

REVIEW QUESTIONS. — (1) Tell about the climate and relief of Mexico. (2) About the industries. (3) About the products. (4) About the inhabitants. (5) What cities are there? (6) What is the form of government? (7) How is the capital situated? (8) For what is Central America important at present?

SUGGESTIONS. — (1) What reason can you see for digging the Nicaragua Canal at the place where it is shown on the map?

(2) Why are there no large rivers in Mexico? (3) Read an account of the conquest of Mexico by the Spaniards.

XXI. THE WEST INDIES AND BERMUDA ISLANDS

Review Questions. — (1) Describe the West Indies. (2) Which was the first land discovered by Columbus? (3) What are the chief products of the West Indies? (4) Of what race are most of the inhabitants? (5) What two negro republics are found in the West Indies? (6) Tell what you can about Cuba and Porto Rico; about Jamaica; about Trinidad; about Barbados; about the Bermuda Islands.

Suggestions. — (1) At what time of the year would it be best for people to visit these islands? (2) What have you already learned about the cultivation of sugar-cane and tobacco? (3) Why is Bermuda of importance to Great Britain? (4) Describe a field of Easter lilies; a sugar plantation; a banana tree.

XXII. SOUTH AMERICA

Review Questions. — (1) Describe the highland regions of South America. (2) What three great valleys are there? (3) In what zones are the different parts of the continent? (4) Which is the rainiest region? Why? (5) What about the rainfall elsewhere? (6) Compare Brazil with Canada in size and number of inhabitants. (7) Tell about the silvas and the valuable products obtained from them. (8) Where are the chief cities in Brazil? Which is the largest? (9) Name the main industries in that section. (10) Where is Venezuela? (11) Tell about the industries there. (12) Where is Caracas? (13) For what is Trinidad noted? (14) Which is the most productive part of South America? What are the products? (15) Name and locate the largest city on the continent. (16) Name the countries along the western side of South America. (17) Why are most of the cities not directly on the coast? (18) Which is the largest port? (19) What are the products of these countries? (20) What part of South America and what islands near the coast belong to Great Britain?

Suggestions. — (1) Draw the outline of South America. Put in the drawing the mountains, chief rivers, and cities. Add the country boundaries. (2) Make a sand model of the continent, showing the highlands and lowlands. (3) What large cities were found in the interior of North America? How about South America in that respect? What are the causes for the difference? (4) Brazil is in the torrid zone, while the United States is in the temperate zone. Which country has the advantage in temperature? Why? (5) Write a story telling of a journey by land and river from the mouth of the Orinoco to the mouth of the Plata. (6) Find some pictures from South America and add them to the school collection. (7) Read something about coffee culture. Read about Pizarro; about Bolivar. (8) From the table on pages 242, 243, etc., find the five largest cities in South America. Add the populations together and compare the result with the total of the five largest cities in North America (see p. 241, etc.). (9) The Hartford Rubber Works Company issues a pamphlet with illustrations of rubber making. You could probably obtain one if you wrote for it to the Toronto Tire Company at Toronto or Montreal.

XXIV. THE BRITISH ISLES

Review Questions. — (1) What are the divisions of the British Isles? (2) Where is each? (3) Why have not the British Isles a colder climate? (4) Why are they favorably situated for commerce? (5) Tell about the commerce of Great Britain; about London; about the government. (6) Of what value are the coal and iron mines to Great Britain? (7) Where are the chief iron industries carried on? (8) Where is coal shipped from? (9) Name some of the principal seaports. (10) Tell about agriculture; about manufacturing. (11) Name some of the principal centres for manufacturing. (12) Tell about Ireland. (13) How have the British come to be such a manufacturing nation? (14) How have they come to have so many ships?—So many colonies? (15) Name all the colonies you have learned about in the Western Hemisphere. (16) What fortresses does Britain possess to protect her commerce in the Mediterranean Sea?

Suggestions. — (1) What British navigators and explorers have you read about? (2) Make a list of all the articles you can think of that have come from Great Britain. Tell, if you can, from what port. (3) What books have you read that were written by British authors? (4) Describe the British form of government.

XXV. OTHER COUNTRIES OF EUROPE

Norse Countries. QUESTIONS. — (1) What about the climate of Norway and Sweden? (2) Tell about the agriculture; the other industries. (3) Which are the Norse nations? (4) What colonies have the Danes? (5) Name the chief industries of Denmark. (6) What kind of government have these Norse countries, and what is the capital of each? (7) What is the most northerly point of Norway? The most northerly town in Europe?

SUGGESTIONS. — (8) Find out something about Iceland. (9) In what other section that you have studied is fishing important? (10) Find out about the length of days and nights in Norway. (11) Draw a map of the Scandinavian peninsula. (12) Of what parts of Canada do the fiords of Norway remind you?

Russia. QUESTIONS. — (1) Tell about the size of Russia. (2) What parts of Russia in Europe are not fitted for farming? Why? (3) What is the main occupation of the people? Name the important products. (4) What are the tundras?—The steppes? (5) Which is the largest river in Europe? (6) Where are the leading Russian ports? (7) Locate three of the largest cities, and state for what each is important. (8) Tell about the government; about the great mass of the people.

SUGGESTIONS. — (9) Why would you not expect Russian sailors to be as numerous as the British sailors? (10) Name some city of Canada which is about as far south as Odessa. (11) How does the northern location of St. Petersburg interfere with its commerce by sea? (12) What cape in Labrador is as far north as St. Petersburg? (13) Show the route a vessel would take in going from Odessa to London; from Odessa to St. Petersburg.

Germany. QUESTIONS. — (1) Where is the highest land in Germany? The great plains? (2) Tell about the chief farm products. (3) What are the principal manufactures in Germany? (4) Where is Hamburg? (5) What advantage has it as a seaport? (6) For what is Berlin noted? Leipzig? Munich? Dresden? Locate each. (7) Tell about the government.

SUGGESTIONS. — (8) Do you know any songs or stories about the Rhine River? (9) Make a drawing showing the course of this river.

(10) Do you know of any German paintings? Of any music written by Germans? (11) Make a collection of German pictures.

Holland. Questions. — (1) Tell about the dikes and canals of Holland. (2) What is the principal industry? Why? (3) What important colonies has Holland? (4) Which are the main cities?

Suggestions. — (5) Write a story telling what you think might result if a dike were to give way. (6) Find a picture of a Dutch windmill. (7) Tell what you would expect to see in crossing Holland on a railway train.

Belgium. Questions. — (1) What are the farm products of Belgium? (2) Tell what you can about flax. (3) Name and locate the two principal cities. (4) What about coal and iron?

Suggestions. — (5) Examine a piece of Brussels carpet; a piece of lace also.

France. Questions. — (1) Describe the chief slopes of France. (2) What are the products in the northern part? In the southern part? (3) Tell about the silk industry. (4) What can you say about the capital? (5) About any of the other cities? (6) What kind of a government has France?

Suggestions. — (7) Examine a cocoon and a piece of silk. Obtain a caterpillar, if possible the silkworm, and raise it in the school, to see how the silkworm forms silk and what happens to the "worm." (8) Why would the value of a cocoon be destroyed if the chrysalis inside were to break through in order to get out? (9) Can you find any pictures of Paris? (10) Write an account of Jacques Cartier's voyage from St. Malo.

Spain and Portugal. Questions. — (1) Where are the Pyrenees Mountains? (2) Tell about the former power of these countries. (3) Describe the relief and climate. (4) What are the industries on the plateau? (5) What minerals are found there? (6) Where is most of the farming? What are the chief products? (7) Name and locate the most important coast cities; the two capitals. (8) What islands belong to Spain and Portugal? (9) From where did Columbus start in his voyage to discover America?

Suggestions. — (10) Would you expect the rivers to be navigable for any considerable distance from the Spanish coast? Why?

(11) Make a sand map of Spain, showing the high and low land. (12) Examine some quicksilver. For what is it used? (13) Can you find out anything about the Moors and the Alhambra in Southern Spain? Perhaps you can find pictures from there. Washington Irving has written some beautiful stories about the Alhambra.

Italy. Questions. — (1) Where is Rome? Venice? Naples? Mt. Vesuvius? Milan? (2) Tell something about each of these. (3) Where are the mountains? (4) Where is the Po Valley? (5) What is cultivated in Italy? (6) What islands form part of the kingdom of Italy?

Suggestions. — (7) Find pictures of some of the ruins in Rome. (8) Of some of the buildings in Venice. (9) Look on a globe to see in which direction Rome is from New York (or see maps, Figs. 30 and 173). (10) Draw a map of Italy.

Switzerland. Questions. — (1) What are some of the industries of the Swiss? (2) What languages are spoken? (3) Name the principal cities. (4) What is the kind of government?

Suggestions. — (5) Read the story of William Tell. (6) Find other stories about Switzerland. (7) What disadvantage do you see in having so many languages? (8) What large rivers rise in Switzerland? (9) Write a story describing a visit to the Alps. You will get some suggestions from Figure 19, page 20, also from Our Home, Figure 15, page 17, and Figure 20, page 22.

Austria-Hungary. Questions. — (1) Name four leading cities in Austria-Hungary. (2) Tell why each is important.

Suggestions. — (3) Trace the Danube River from its source to its mouth. (4) How far is Trieste from Venice? (5) Through what waters would a vessel pass in sailing from Halifax to Trieste? (6) By using the scale on the map, find out how far Vienna is from London; from Munich; from Leipzig; from Berlin; from Paris; from St. Petersburg. (7) In what direction is it from each of these?

Greece. Questions. — (1) What can you say about the influence of Greece upon the world? (2) Find Athens. (3) Tell about the climate and products.

Suggestions. — (4) Where can you read about Ulysses? (5) Have some one tell you the story of the Trojan War. (6) Find some other stories about the ancient Greeks.

Turkey. Questions. — (1) Where is Turkey? What is its capital? (2) Tell about its government. (3) What is the chief occupation of the people? (4) What countries have gained their independence from Turkey? (5) How is the Black Sea connected with the Mediterranean?

Suggestions. — (6) What is the boundary between Turkey in Europe and Turkey in Asia? (7) Examine a Turkish rug. (8) What reasons can you give why Russia would like to own Constantinople?

General Suggestions. — (1) Do you know of any persons who have come from one of these countries of Europe? If so, ask them to tell you about them. Also have them speak in their native language. (2) Ask your storekeeper to show you some goods from Europe. (3) What difficulties would you expect to meet if you were to travel through Europe without knowing any foreign languages? (4) Bound each of the countries of Europe. (5) Draw an outline map of Europe, putting in these boundaries and the principal rivers. (6) Make a dot to represent a large city. Mark the capitals with stars. (7) Collect pictures of Europe for the school collection. (8) Cut out scraps from the magazines and papers, relating to the people, animals, plants, cities, etc., of different parts of Europe, and present them to the school to be kept for use in the geography class. They can be arranged by countries and will be very useful.

XXVI. ASIA

South-western Asia. Questions. — (1) What part of Asia has had the greatest influence on the civilized world? Tell about it. (2) To what nation does Palestine belong? (3) What other parts of Asia belong to it? (4) Tell about Mecca. (5) Describe Arabia. (6) How do the Arabians live? (7) What do you know about Persia? (8) How do people travel in those countries?

Suggestions. — (9) What is meant by the date 1900? (10) What buildings in your neighborhood have been erected in the memory of Christ? (11) What stories in the Bible have you read that tell about places mentioned in this book or on the map? (12) What reasons can you suggest why the Turks have not taken possession of the interior of Arabia, as well as of the coast? (13) Does your grocer sell Mocha coffee? (14) Examine a Persian or Turkish rug. (15) Learn how camels are especially fitted to live in desert countries.

Siberia. QUESTIONS. — (1) Point toward Siberia. (2) Tell about the climate. (3) In what occupations are the people engaged? (4) How does Siberia compare in size with Russia in Europe?

SUGGESTIONS. — (5) What advantage will the railway be to Russia? (6) How does that railway compare in length with the Canadian Pacific Railway? (7) What object do you see in having the terminus, Port Arthur, so far south?

Chinese Empire and Korea. QUESTIONS. — (1) Name some of the arts that we have learned from the Chinese. (2) What has made them so backward? (3) What special ports are open to foreign traders? (4) In what part of China do most of the people live? Why there? (5) What are the principal products? (6) What kind of a government has China? (7) Tell about Korea.

SUGGESTIONS. — (8) How can you distinguish a Chinaman from other men? (9) How does the number of people in China compare with the number in the whole of Europe? (See table on pp. 235, 236.) (10) Write a story telling some of the differences between life in Canada and in China. (11) Draw the two chief rivers in China. (12) How might railways in China help to prevent the awful famines that they have there? (13) Find out about Confucius; about the great wall of China.

Japan. QUESTIONS. — (1) Where is Japan? (2) What islands of Europe compare with Japan? How? (3) In what way were the Japanese like the Chinese? (4) How have they differed? (5) Why are they called an artistic race? (6) What are their products? (7) Name and locate the chief cities.

SUGGESTIONS. — (8) Make a collection of Japanese articles, as paper napkins, fans, etc. (9) Examine them to see in what respect they are artistic. (10) Collect pictures of Japanese houses and people.

XXVII. INDIA AND INDO-CHINA

REVIEW QUESTIONS. — (1) To what nation does India belong? (2) What title does King Edward VII. take from India? (3) What mountains are in the north? (4) Which is the highest mountain in the world (see p. 246)? (5) What rivers are in northern India? (6) Name the largest cities and give their position. (7) How is India governed? (8) What are the chief products? (9) What advantage does Britain enjoy by possessing India? (10) Name the peninsula east of India. (11) What part belongs to Britain?—To France? (12) Name the chief towns in Indo-China. (13) What comes from them? (14) Where is Ceylon? (15) What comes from there?

SUGGESTIONS.—(1) How far from India was Columbus when he discovered America? (2) What route should he have taken if he had continued his voyage to India? (3) What is the shortest route from London to Bombay? (4) How far is it from Bombay to Calcutta by rail? (5) Have you read of the relief of Lucknow and the siege of Delhi? (6) Read some of Kipling's stories of India.

GENERAL REVIEW.—(1) Draw an outline map of Asia, and put in the boundary lines of the principal countries; also, the rivers, mountains, and cities. (2) Find out about foreign missions in Asia.

XXVIII. AFRICA

REVIEW QUESTIONS.—(1) Why is so little known about Africa? (2) Why is it called the "dark continent"? (3) Which is the best known country in northern Africa? (4) Name and locate its two chief cities. (5) Tell about the Nile River. (6) About the Suez Canal. (7) About the Sahara Desert. (8) Where is the Soudan? What animals live there? (9) What two great rivers are in Central Africa? (10) How are goods carried from place to place? (11) What influence are the nations of Europe having upon Africa? (12) Describe the Kongo Free State.

SUGGESTIONS.—(1) What reasons can you give why Timbuktu should be an important trade centre? (2) The caravans composed of camels travel at the rate of about sixteen miles a day. How long would it probably take for a caravan to travel from Timbuktu to Tripoli on the Mediterranean coast? (3) One camel can carry about four hundred pounds. How many tons could a caravan of six hundred camels carry? (4) What are some of the dangers of a journey across the desert? (5) Beginning with the western Sahara, trace the desert country that extends across Africa and Asia. (6) Why should the two largest cities in Africa be located at or near the mouth of the

Nile River? (7) Find some object made of ivory and show it to the class. (8) Why are there no tributaries to the northern half of the Nile? What part of the river, then, probably has most water?

XXIX. SOUTH AFRICA

REVIEW QUESTIONS. — (1) What parts of South Africa belong to Great Britain? (2) Which have been recently taken possession of? (3) What climate has the country? (4) What are the principal products? (5) What valuable mines are there? (6) Name the capitals of the different British colonies. (7) What large river flows eastward? (8) Which westward? (9) What native race inhabits South Africa?

SUGGESTIONS. — (1) Find out about the war in South Africa with the Boers. (2) Why are there so few seaports in British South Africa? (3) Examine an ostrich feather and a diamond. (4) In sailing from Halifax to Cape Town what islands would you pass?

Draw an outline map of Africa, and put in the main divisions, rivers and cities.

XXX. THE COMMONWEALTH OF AUSTRALIA, NEW ZEALAND, AND ISLANDS OF THE PACIFIC

The Commonwealth of Australia. REVIEW QUESTIONS. — (1) Of what Empire does Australia form part? (2) How does it compare in size with Canada (see pp. 235, 236)? (3) How does the mountain range in the east affect the climate? (4) Which, then, is the most valuable part of the country? (5) How is the scarcity of water overcome? (6) Tell about the native plants and animals? (7) What animals and plants have been imported? (8) What industries have resulted? (9) Name the principal exports. (10) What peculiar formation is there on the north-east coast? (11) What first attracted people to Australia? (12) Name the chief cities and state where they are situated. (13) How is Tasmania situated? (14) What is the chief town?

SUGGESTIONS. — (1) Sketch Australia, showing the divisions, the Murray and Darling rivers, and the principal cities. (2) What other places in the world are noted for sheep and cattle raising? — (3) For gold mining? (4) Which form part of the British Empire?

(5) Read about the trouble imported rabbits have caused in Australia. (6) Where are the desert countries of the world?

New Zealand Islands. Review Questions. — (1) How far is Auckland in New Zealand from Sydney in New South Wales? (2) What is one of the peculiar features of New Zealand? (3) What are the natives of New Zealand called? (4) What are the products?

Suggestion. — (1) Read the voyages of Captain Cook.

The East Indies. Review Questions. — (1) Name some of the larger islands of the East Indies. (2) Find out to whom each of the larger islands belongs (see on the map, Fig. 233). (3) What are their products?

Suggestions. — (1) Why were they named the "East Indies"? (2) Find out what spices are used in cooking at your house. (3) Why was quinine called "Peruvian bark"? (4) There are volcanoes in these islands; are there any volcanoes in Canada? (5) Find out where the tea and coffee used at your home come from.

Philippine Islands. Review Questions. — (1) To what country do these islands now belong? (2) Where are they situated? (3) Name the principal city. (4) How far is Manila from China? (5) What native races occupy the islands?

Suggestions.—(1) Collect some Manila hemp rope. (2) Find out about the battle of Manila Bay, and about the Filipinos.

Islands of the Pacific. — (1) Find the Fiji Islands. (2) What large island lies north of Australia? (3) Tell about it. (4) Tell about the Hawaiian Islands.

Suggestions. — (1) Find out something about the Fiji Islands. (2) About the Hawaiian Islands. (3) Tell why Honolulu is important. (4) Why Fanning Island is important. (5) How far is it from Vancouver to Sydney by way of Honolulu?

APPENDIX

CONTINENTS AND PRINCIPAL COUNTRIES

NOTE. — The figures 1897, 1900, etc., refer to the year in which the estimate was made. Most of the figures are obtained from the "Statesman's Year Book" for 1901, and "Gotha Almanac" for 1901, or from the "Century Atlas."

	Area in Square Miles		Population
NORTH AMERICA	**8,025,594**	**1900**	**100,000,000**
United States (with Alaska)	3,602,990	1900	76,150,768
Mexico	767,005	1895	12,619,959
Canada (without Franklin District)	3,606,546	1901	5,390,740
Central America	175,696	1897	3,271,426
SOUTH AMERICA	**6,837,000**	**1897**	**40,000,000**
Brazil	3,209,878	1892	18,000,000
Argentina	1,778,195	1895	3,954,911
Peru	449,000	1897	3,000,000
Chile	290,829	1895	2,527,320
EUROPE	**3,850,000**	**1897**	**374,000,000**
Russia	2,095,616	1897	106,159,140
German Empire	208,830	1900	56,345,014
Austria-Hungary	240,942	1900	47,013,835
France	204,092	1901	38,641,333
British Isles	121,377	1901	41,454,621
Italy	110,646	1900	32,100,000
Spain	197,670	1897	18,089,500
Turkey in Europe	66,500	1901	6,086,300

CONTINENTS AND PRINCIPAL COUNTRIES. (*Continued*)

	Area in Square Miles		Population
ASIA (with Islands)	**17,255,890**	**1897**	**831,000,000**
Chinese Empire	4,468,750	1897	303.241.969
India	1,700,000	1901	294,266,701
Japan	162,655	1896	43,759,577
Turkey in Asia	680,000	1900	16,333,000
Russia in Asia	6,369,685	1897	23,051,972
AFRICA	**11,508,793**	**1897**	**170,000.000**
Kongo Free State	900,000	1898	14,000,000
Egypt	400,000	1897	9,734,405
Cape Colony	277,077	1891	1,527,224
Natal	35,019	1900	929,970
Orange River Colony	48,326	1890	207,503
Transvaal Colony	119.109	1896	867,897
Rhodesia	750,000	1898	1,350,000
AUSTRALASIA	**3,077,547**	**1901**	**4,604,130**
Commonwealth of Australia	2,973,076	1901	3,788,310
New South Wales	310,700	1901	1,366,408
Victoria	87,884	1901	1,200,914
Queensland	668.497	1900	498,249
South Australia	903,690	1901	362.604
Tasmania	26,385	1901	172,475
Western Australia	975,920	1901	187,660
New Zealand	104,471	1901	815.820

SIZE OF THE EARTH

LENGTH OF THE EARTH'S DIAMETER at equator (miles)	7,926
LENGTH OF THE EQUATOR (miles)	24.902
THE EARTH'S SURFACE (square miles)	**196,940.000**
Pacific Ocean (square miles)	55,660,000
Atlantic Ocean (square miles)	33,720,000
Antarctic Ocean and the great Southern Sea surrounding the south pole (square miles)	30,605,000
Indian Ocean (square miles)	16,720,000
Arctic Ocean (square miles)	4,781,000
The Sea	**141,486,000**

AREA AND POPULATION OF CANADA — 1901

	Square Miles	Population
Dominion of Canada	**3,606.546**	**5,390,740**
British Columbia	383,300	177,272
Manitoba	73,956	254.947
New Brunswick	28,200	331,120
Nova Scotia	20,600	459.574
Ontario	220,000	2,182.943
Prince Edward Island	2,000	103,259
Quebec	347,350	1,648.898
Northwest Territories	555,640	158,940
Unorganized Territories	1,775,200	52,709

POPULATION OF THE PRINCIPAL CANADIAN CITIES AND TOWNS — 1901

Montreal	267,730
Toronto	208,040
Quebec	68,840
Ottawa	59,928
Hamilton	52,634
Winnipeg	42,340
Halifax	40.832
St. John	40.711
London	37.981
Vancouver	26.133
St. Henri	21.192
Victoria	20,816
Kingston	17.961
Brantford	16.619
Hull	13.993
Windsor, Ont.	12,153
Charlottetown	12.080
Sherbrooke	11,765
Guelph	11,496
St. Thomas	11,485
Peterboro'	11,239
Valleyfield	11.055
Ste. Cunegonde	10,912
Three Rivers	9,981
Stratford	9.959
St. Catharines	9,946
Sydney	9,909
Berlin	9,747
St. Hyacinthe	9,210
Dawson	9.142
Belleville	9,117
Chatham, Ont.	9.068
Moncton	9,026
Brockville	8,940
Westmount	8,856
Woodstock	8.833
Owen Sound	8.776
Sarnia	8,176
Galt	7,866
Levis	7.783
Sault Ste. Marie	7,169
Fredericton	7,117

POPULATION OF CANADIAN CITIES AND TOWNS, 1901. (*Continued*)

Sorel	7,057	Dartmouth	4,806
Lindsay	7,003	North Sydney	4,646
Glacé Bay	6,945	Ingersoll	4,573
Cornwall	6,704	Fraserville	4,569
New Westminster	6,499	New Glasgow	4,447
Yarmouth	6,430	Oshawa	4,394
Rossland	6.159	Niagara Falls	4,244
Nanaimo	6,130	Cobourg	4.239
Toronto Junction	6.091	Joliet	4.220
Truro	5,993	Trenton	4,217
Barrie	5,949	Port Hope	4.188
Collingwood	5,755	Goderich	4,158
Lachine	5,561	Calgary	4,152
Brandon	5,380	Hawkesbury	4,152
Nelson	5,273	Arnprior	4,150
Rat Portage	5,202	Petrolea	4,135
Spring Hill	5,178	Carleton Place	4,059
Pembroke	5,156	St. John's, Que.	4,030
Smith's Falls	5,155	Portage La Prairie	3,901
Amherst	4,963	Picton	3,235
Orillia	4.907	Regina	2.645
Chatham, N.B.	4,868	Edmonton	2,626

SOME STATISTICS OF CANADIAN TRADE

Total Imports, 1901	$190,415,525
Total Exports, 1901	196.487,632

SOME OF THE PRINCIPAL EXPORTS — 1901

Provisions — cheese, butter, bacon, etc.	$39,375,158
Animals — living	11,693,929
Hides, and manufactures of leather	4,612,051
Breadstuffs	19,042,950
Lumber, wood-pulp, and articles of wood	32,852,190
Metals — gold and silver	26,865,906

Some of the Principal Exports — 1901. (*Continued*)

Metals — iron, copper, nickel, lead, etc., manufactured and unmanufactured	$ 11.105,855
Coal and Coke	5,507,990
Fish	10.670.114
Fruit	2.010.879
Furs	1,659,547

VALUE OF THE FISHERIES OF CANADA — 1900

Salmon	$ 3.893,217
Cod	3.614,775
Lobsters	3.055.350
Herring	1,853,237
Mackerel	1.549,448
Whitefish	705,323
Trout	657,248
Other Fish	3.562,906
Fur Seal (British Columbia)	562.845

MINERAL PRODUCTS OF CANADA — 1901

Metallic	
Gold	$ 24,462.222
Silver	2,993.668
Copper	6,600,104
Nickel	4,594.523
Lead	2.199.784
Pig Iron	1,974.397
	$ 42,824,698
Non-Metallic	
Coal	$ 14,671.122
Coke	1,264.360
Petroleum and Natural Gas	1,265,774
Asbestos	1.186.434
Salt	262,328
Gypsum	340,148
Cement	630,030
Structural materials and clay products	5,831,231
Other non-metallic minerals	810.906
	$ 26.282,333

THE BRITISH EMPIRE

	Area in Square Miles		Population
The British Empire	**12,171,120**	**1901**	**395,960,000**

EUROPE

The British Isles (including the Channel Islands and Isle of Man)	**121,377**	**1901**	**41,454,621**
England	51,000	1901	30,827,914
Wales	7.378	1901	1,698,161
Scotland	30,000	1901	4,472,000
Ireland	31,759	1901	4,456,546
European Possessions			
Gibraltar	2	1901	26,830
Malta and Gozo	125	1900	192,070

ASIA

Aden and Perim, Sokotra, etc.	1,467	1898	53,910
British Borneo, Labuan, and Sarawak	84,031	1898	688,411
Ceylon	25.365	1901	3,576.990
Cyprus	3,584	1901	237,022
Hong Kong	426	1898	334,400
India and Burmah	1,700,000	1901	294,266,701
Straits Settlements and Feudatory States	40,000	1898	1,567,967
Wei-hai-wei	270	1890	78,000

AFRICA

Colonies			
Cape Colony	276,775	1898	1,787,960
Natal (with Zululand)	35.019	1900	929,970
Orange River Colony	48.326	1890	207,503
Transvaal Colony	119.109	1896	867,897
Basutoland	10.293	....	218,324
West Africa (Gambia. Sierra Leone. Gold Coast, and Lagos)	87,200	1900	3,650,000
Mauritius, etc.	1,085	1900	380,040
Seychelles Islands	148	1900	20,275

THE BRITISH EMPIRE. (*Continued*)

AFRICA — PROTECTORATES

	Area in Square Miles		Population
Rhodesia	643,000	1898	1,350,000
Central Africa Protectorate	58,000	....	1,000,000
East Africa Protectorate	270,000	....	2,500,000
Nigeria Protectorate	346,730	....	24,000,000
West Africa Protectorate	30,000	....	500,000
Central Africa (Uganda)	58,000	....	1,000,000

AMERICA

The Dominion of Canada	3,606,546	1901	5,390,740
Newfoundland	42,734	1898	208,000
Labrador (Dep.)	120,000	....	4,106
West India Islands	12,329	1898	1,442,829
Honduras	7.562	1891	31,471
British Guiana	109,000	1898	(est.) 286,484

AUSTRALASIA

Commonwealth of Australia	2,973,076	....	3,788,310
New Zealand	104,471	....	815,820

ISLANDS

South Sea Islands	22,311	....	330,000
Indian Ocean Islands	1,085	....	401,146
Atlantic Islands	4,894	....	25,140

SOME OF THE LARGEST CITIES OF THE WORLD

	Population
1. London, England, 1901	4,536,063
2. New York, United States, 1900	3,437,202
3. Paris, France, 1899	2,511,629
4. Canton, China	2,500,000
5. Berlin, Germany, 1900	1,884,345

SOME OF THE LARGEST CITIES OF THE WORLD. (*Continued*)

		Population
6.	Chicago, United States, 1900	1,698,575
7.	Vienna, Austria-Hungary, 1900	1,662,269
8.	Tokio, Japan, 1900	1,507,557
9.	Osaka, Japan, 1900	1,311,763
10.	Philadelphia, United States, 1900	1,293,697
11.	St. Petersburg, Russia, 1897	1,267,023
12.	Calcutta, India, 1891	1,121,664
13.	Moscow, Russia, 1897	1,023,817
14.	Tientsin, China, 1898	950,000
15.	Kioto, Japan, 1900	931,568
16.	Peking, China, 1898	900,000
17.	Constantinople, Turkey, 1885	873,565
18.	Hankau, China, 1897	800,000
19.	Bombay, India, 1901	770,843
20.	Hamburg, Germany, 1900	768,349
21.	Glasgow, Scotland, 1900	760,422
22.	Buenos Aires, Argentina, 1898	753,000
23.	Hangchau, China, 1898	700,000
24.	Liverpool, England, 1901	684,947
25.	Rio de Janeiro, Brazil, 1898	674,972
26.	Fuchau, China, 1897	650,000
27.	Buda-Pesth, Austria-Hungary, 1900	648,149
28.	Warsaw, Poland, 1897	638,209
29.	St. Louis, United States, 1900	575,238
30.	Cairo, Egypt, 1897	570,062
31.	Boston, United States, 1900	560,892
32.	Manchester, England, 1900	543,969
33.	Naples, Italy, 1897	536,673
34.	Brussels, Belgium, 1897	531,611
35.	Amsterdam, Holland, 1898	523,558
36.	Birmingham, England, 1901	522,182
37.	Madrid, Spain, 1887	513,000
38.	Baltimore, United States, 1900	508,957
39.	Rome, Italy, 1897	499,965
40.	Melbourne, Australia, 1901	493,950

OTHER IMPORTANT CITIES

	Population
Aberdeen, Scotland, 1900	153,108
Adelaide, Australia, 1900	160,691
Agra, India, 1901	188,300
Albany, United States, 1900	94,151
Alexandria, Egypt, 1897	319,766
Antwerp, Belgium, 1897	271,284
Athens, Greece, 1896	111,486
Bahia, Brazil, 1890	174,412
Barcelona, Spain, 1887	272,481
Basle, Switzerland, 1901	113,000
Belfast, Ireland, 1901	348,965
Belgrade, Servia, 1901	72,000
Benares, India, 1901	203,095
Berne, Switzerland, 1897	49,030
Bordeaux, France, 1896	256,906
Bradford, England, 1900	279,807
Bremen, Germany, 1900	224,882
Breslau, Germany, 1900	422,415
Brisbane, Australia, 1901	119,428
Bristol, England, 1901	328,842
Bucharest, Roumania, 1897	250,000
Buffalo, United States, 1900	352,387
Callao, Peru, 1890	35,492
Cape Town, Cape Colony, 1891	51,251
Caracas, Venezuela, 1893	80,000
Cawnpore, India, 1901	197,000
Cettinje, Montenegro, 1897	2,300
Chemnitz, Germany, 1901	206,584
Christiania, Norway, 1901	227,600
Cincinnati, United States, 1900	325,902
Cleveland, United States, 1900	381,768
Cologne, Germany, 1896	321,564
Colombo, Ceylon, 1900	154,556
Copenhagen, Denmark, 1895	408,300
Damascus, Turkey, 1898	150,000
Delhi, India, 1901	208,385

Other Important Cities. *(Continued)*	Population
Detroit, United States, 1900	285,704
Dresden, Germany, 1900	395,349
Dublin, Ireland, 1900	373,179
Dundee, Scotland, 1900	160,871
Dusseldorf, Germany, 1900	214,000
Edinburgh, Scotland, 1900	316,479
Florence, Italy, 1898	212,898
Frankfort, Germany, 1900	288,500
Geneva, Switzerland, 1901	105,000
Genoa, Italy, 1898	232,777
Georgetown, British Guiana, 1891	53,176
Hanover, Germany, 1900	236,000
Havana, Cuba, 1899	235,981
Havre, France, 1896	119,470
Hobart, Australia, 1898	34,604
Hull, England, 1900	240,618
Hyderabad, India, 1901	446,291
Jerusalem, Turkey in Asia, 1885	41,000
Johannesburg, Transvaal Colony, 1896	102,078
Kimberley, Cape Colony, 1891	28,718
Kingston, Jamaica, 1898	46,542
Leeds, England, 1900	428,953
Leicester, England, 1900	211,574
Leipzig, Germany, 1901	455,090
Lille, France, 1896	216,276
Lima, Peru, 1891	103,956
Lisbon, Portugal, 1890	307,661
Lodz, Russia, 1897	314,780
Louisville, United States, 1900	204,731
Lucknow, India, 1901	263,951
Lyon, France, 1896	466,028
Madras, India, 1901	509,397
Malaga, Spain, 1887	134,016
Mandalay, Burma, 1901	182,488
Manila, Philippines, 1887	154,062
Marseille, France, 1896	442,239
Mecca, Turkey in Asia, 1885	60,000

Other Important Cities. *(Continued)*	Population
Melbourne, Australia, 1901	493,956
Mexico, Mexico, 1900	368,777
Milan, Italy, 1898	481,297
Milwaukee, United States, 1900	285,315
Minneapolis, United States, 1900	202,718
Mocha, Turkey in Asia	5,000
Montevideo, Uruguay, 1897	249,251
Munich, Germany, 1900	498,503
Newcastle, England, 1900	214.803
New Orleans, United States, 1900	287,104
Nottingham, England, 1900	239,753
Odessa, Russia, 1897	405,041
Palermo, Italy, 1898	290,951
Para, Brazil, 1892	65,000
Pernambuco, Brazil, 1890	111,556
Perth, West Australia, 1901	36,199
Pittsburg, United States, 1900	321,616
Port-au-Prince, Haiti, 1900	70,000
Portland, Maine, United States, 1900	50.145
Prague, Austria-Hungary, 1890	184,109
Rangoon, Burma, 1901	232,325
Riga, Russia, 1897	256,197
Rochester, United States, 1900	162,608
Rotterdam, Holland, 1900	318,468
St. John's, Newfoundland, 1898	31.142
St. Paul, United States, 1900	163,065
San Francisco, United States, 1900	342,782
Santiago, Chile, 1897	302.131
Shanghai, China, 1897	457.000
Sheffield, England, 1900	380.717
Singapore, Straits Settlements, 1901	228.555
Sofia, Bulgaria, 1900	67.920
Southampton, England, 1900	104.911
Smyrna, Turkey, 1898	200.000
Stockholm, Sweden, 1900	300.624
Sydney, Australia, 1901	488,382
Teheran, Persia, 1897	210,000

OTHER IMPORTANT CITIES. *(Continued)*

	Population
The Hague, Netherlands, 1900	206,023
Trieste, Austria-Hungary, 1890	158,344
Turin, Italy, 1898	355,800
Valparaiso, Chile, 1897	139,038
Venice, Italy, 1898	157,099
Vera Cruz, Mexico, 1895	88,993
Victoria, Hong Kong, China, 1898	248,710
Washington, United States, 1900	278,718
Wellington, New Zealand, 1901	49,344
Yokohama, Japan, 1898	193,762
Zürich, Switzerland, 1898	151,983

HEIGHT OF A FEW MOUNTAIN PEAKS

	Feet
Mt. Everest, Himalaya Mountains, Asia	29,002
Aconcagua, Andes Mountains, Chile	22,860
Mt. McKinley, Alaskan Mountains, Alaska	20,464
Mt. Logan, Coast Ranges, Yukon Territory	19,500
Mt. Elburz, Caucasus Mountains, Russia	18,200
Orizaba. Sierra Madre, Mexico	18,314
Mt. St. Elias. Coast Ranges, Alaska	18,100
Mt. Blanc, Alps Mountains, Switzerland	15,781
Mt. Whitney, Sierra Nevada Mountains, United States	14,898
Mt. Rainier. Cascade Mountains, United States	14,526
Mt. Shasta, Cascade Mountains, United States	14,380
Pike's Peak, Rocky Mountains, United States	14,108
Mauna Loa, Hawaiian Islands	13,675
Fremont Peak, Rocky Mountains, United States	13,790
Fujiyama, Japan	12,365
Mt. Cook, New Zealand	12,349
Mt. Sir Donald, Selkirk Range, British Columbia	10,662
Mt. Stephen. Rocky Mountains, British Columbia	10,425
Loma Tina, Haiti	10,300
Mt. Mitchell, Appalachian Mountains, United States	6,711
Mt. Washington, White Mountains, United States	6,293
Mt. Marcy, Adirondacks, United States	5,344

SOME OF THE LARGEST RIVERS IN THE WORLD

Name	Country	Length in Miles	Basin Area	Ocean
Missouri-Mississippi	United States	4,300	1,257,000	Atlantic
Nile	Africa	3,400	1,273,000	Mediter.
Amazon	South America	3,300	2,500,000	Atlantic
Obi	Siberia	3,200	1,000,000	Arctic
Yangtse	China	3,200	548,000	Pacific
Kongo	Africa	2,900	1,200,000	Atlantic
Lena	Siberia	2,800	950,000	Arctic
Hoang-Ho	China	2,700	570,000	Pacific
Niger	Africa	2,600	563,300	Atlantic
Plata	South America	2,580	1,200,000	Atlantic
Volga	Russia	2,400	563,300	Caspian
St. Lawrence	Canada	2,200	519,000	Atlantic
Mackenzie	Canada	2,000	590,000	Arctic
Yukon	Alaska	2,000	440,000	Pacific
Indus	India	1,800	372,700	Indian
Danube	Europe	1,770	300,000	Atlantic
Ganges	India	1,500	440,000	Indian

THE GREAT LAKES OF THE WORLD

Name	Length in Miles	Breadth in Miles	Area in Square Miles	Country
Caspian	680	270	169,000	Russia
Superior	390	160	31,200	Canada and U.S.
Victoria Nyanza	230	220	30,000	Africa
Aral	225	185	26,900	Asiatic Russia
Michigan	335	85	20,000	United States
Huron	250	100	17,400	Canada and U.S.
Tanganyika	420	50	12,650	Africa
Baikal	397	45	12,500	Siberia
Erie	250	58	10,000	Canada and U.S.
Winnipeg	275	60	9,000	Canada
Chad (a shallow lake which grows very large in the rainy season and shrinks in the dry season)			about 10,000	

APPROXIMATE AVERAGE HEIGHT OF SOME PLATEAUS

	Feet
Tibet	10,000–15,000
Bolivia	10,000–13,000
Abyssinia	5,000– 7,000
Mexico	5,000– 6,000
Western United States Plateau	5,000– 6,000
Spain	2,000– 3,000
Brazil	2,000– 2,500
Laurentian	500– 2,000

INDEX OF PLACES AND PRONOUNCING VOCABULARY

PART II

KEY TO PRONUNCIATION

a, as in *fat;* *ā*, as in *fate;* *ä*, as in *far;* *â*, as in *fall;* *e*, as in *pen;* *ē*, as in *mete;* *ė*, as in *her;* *i*, as in *pin;* *ī*, as in *pine;* *o*, as in *not;* *ō*, as in *note;* *ö*, as in *move;* *u*, as in *tub;* *ū*, as in *mute;* *u̇*, as in *pull;* *g*, as in *get;* *ġ*, as in *gem;* *c*, as in *cat;* *ç*, as in *cent.*

A double dot under a or o (a̤, o̤) indicates that its sound is shortened to that of *u* in *but.*

Italicized letters are silent. The sign ′ tells upon which syllable the accent is placed. The numbers refer to pages in the book, excepting where Fig. is before them, when they refer to figures in the book.

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